MARCH, 1943

fuel oil & oil heat

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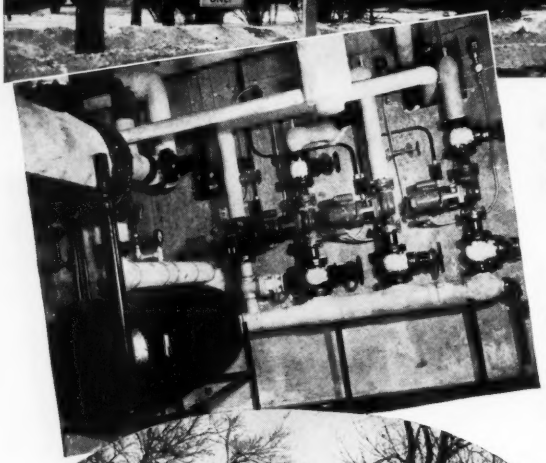
THE NAVY LIKES WATER, TOO!



B & G Monoflo System installation in Great Lakes Post Office Building. Steam Convertor is shown at left with B & G Pumps circulating heated water from the Convertor to individual heating zones.

Guard Building at Main Gate.

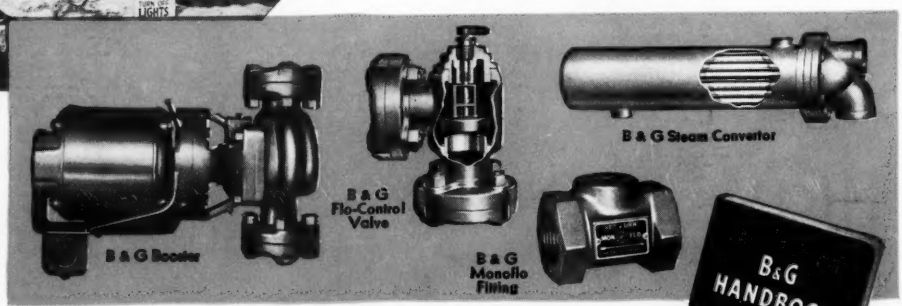
B & G MONOFLO *FORCED HOT WATER* HEATING SYSTEMS KEEP SAILORS COMFORTABLE AT GREAT LAKES NAVAL TRAINING STATION

At this great military training camp, numerous buildings, both administrative and residential, are equipped with B & G Monoflo Heating Systems. Here, as everywhere, the better control qualities of forced hot water heat assure genuine comfort in either mild or severe winter weather.

In these Great Lakes installations, steam from a central plant is piped to Steam Convertors in the individual buildings. The water in the heating circuits is heated in the Convertors and pumped under thermostatic control to the heating units as required.

B & G Monoflo Systems are also rapidly growing in favor for ship heating. The single main of this system, smaller pipe sizes and ability to circulate radiators above and below the main have definite space and equipment-saving advantages. Add to this the wide range of temperature at which water can be circulated and you have the reason why the B & G Monoflo System is not only more economical but offers much greater comfort.

Complete design details are given in the B & G Handbook—write for your copy.



The units of a B & G Monoflo System are few in number and extremely simple mechanically. The Pump operates only when there is a call for heat, circulating heated water to the radiators. Note the B & G Monoflo Fitting—it permits the use of a single pipe main.

B&G

BELL & GOSSETT COMPANY

MORTON GROVE, ILLINOIS *(Suburb of Chicago)*

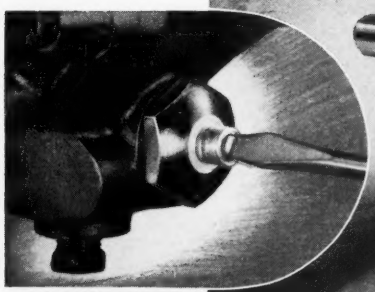
Canadian Licensee: S. A. Armstrong, Ltd., 115 Dupont St., Toronto

MONOFLO SYSTEM

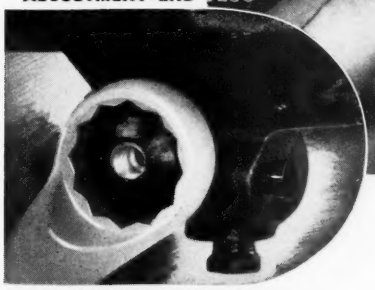
Complete instructions for designing B & G Forced Hot Water Heating Systems.

Sundstrand

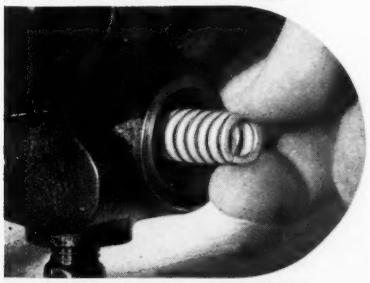
SERVICE SUGGESTIONS



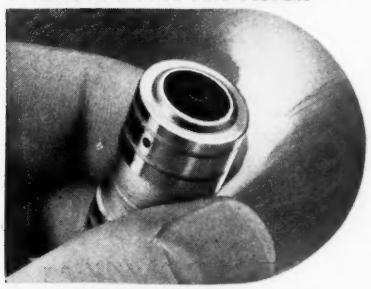
1. RELIEVE TENSION AND REMOVE ADJUSTMENT END PLUG



2. REMOVE VALVE END PLUG



4. REMOVE SPRING AND PISTON



5. INSPECT PISTON SEAT

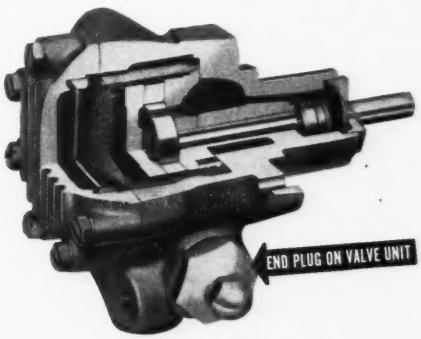
3. CHECK VALVE SEAT

*2. Check the Valve...

Keep your Sundstrand Fuel Units operating at full efficiency! Poor cut-off may be caused by a damaged valve seat, by dirt accumulated on the seat, or by a gummed up and sticking piston. A missing washer under the pressure screw cap may permit an oil leak. High oil pressure may be caused by a sticky piston or by incorrect re-assembly of valve parts. On any service or trouble call, be sure to remove, clean, and check the valve unit if any of these symptoms appear.

CROSS-SECTION OF S-1 FUEL UNIT

This picture shows where the valve unit is located. End plugs at both ends of the assembly give access to all valve parts. For removing these plugs, we recommend a standard 1¼" Williams Superrench No. 1808 or No. 8037. The pictures above show the principal steps in checking the valve. *Do not remove the entire pump if the trouble is only in the valve unit.* Note: Write for Service Bulletin 102 and for Bulletins 106 and 107 showing mounting adaptors and foot mountings to replace old and worn-out fuel units with new Sundstrand Fuel Units.



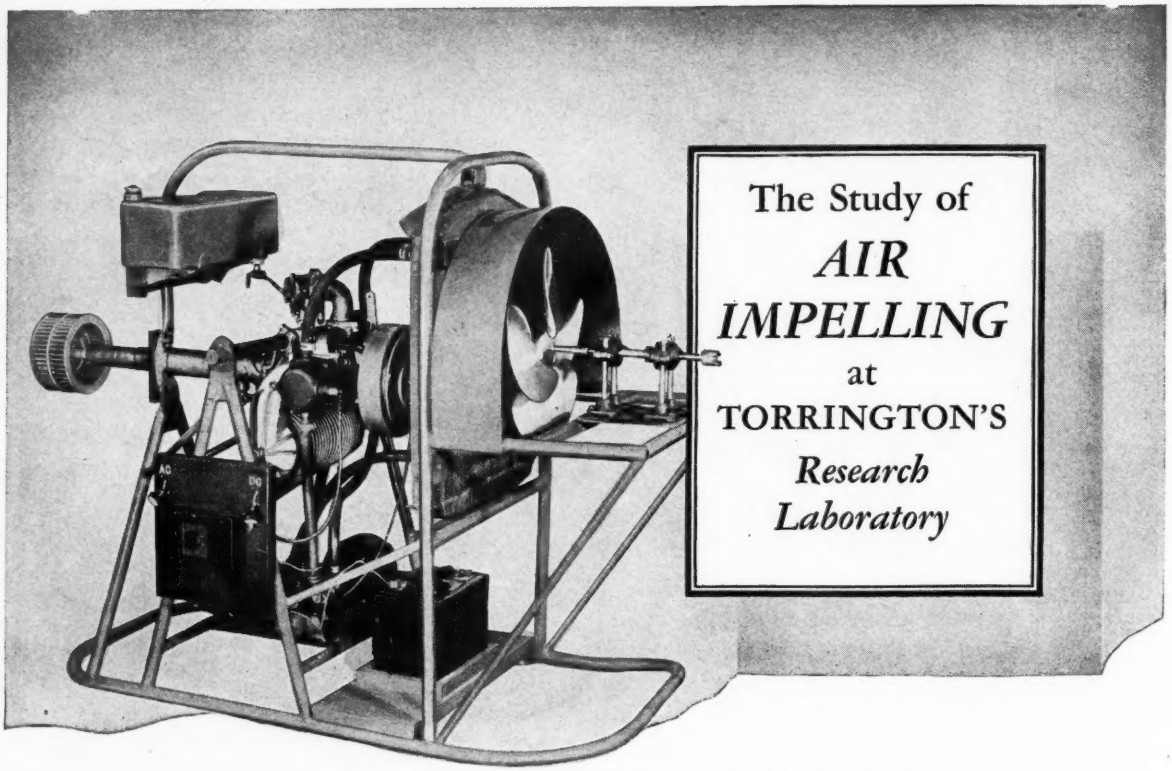
***To follow: 3. Correct Poor Cut-Off.**

SUNDSTRAND PUMP DIVISION

SUNDSTRAND MACHINE TOOL CO. ROCKFORD, ILLINOIS U.S.A.

2556 ELEVENTH ST.
ROCKFORD, ILLINOIS

fueloil & oil heat



The Study of *AIR IMPELLING* at TORRINGTON'S *Research Laboratory*

Air impellers are tested in the Torrington Research Laboratory at excessive speeds which exaggerate service conditions. An electrically driven "buster" unit operates at speeds up to 9,000 r.p.m. A gasoline engine (illustrated) operates at speeds up to 5,000 r.p.m. to determine the impeller's ability to withstand vibration.

Constant research, greatly stimulated by war needs, is broadening our ability to serve manufacturers of products using air impellers for present and post-war applications.

The scope of activities at Torrington's Research Laboratory includes: continuous improvement in the design and performance of propeller fan blades and blower wheels; testing and rating of air impellers according to standard codes; consultation with customers on methods of increasing the efficiency of their products in which Torrington air impellers are used.

Manufacturers of "pot type" burners are invited to submit problems involving air impelling for combustion or air circulation and obtain the benefits of special research we are doing in this field.

THE TORRINGTON
MANUFACTURING COMPANY, TORRINGTON, CONN.

MANUFACTURERS OF AIRISTOCRAT QUIET PROPELLER FAN BLADES & AIROTOR BLOWER WHEELS

VOL. I NO. 11

fueloil & oil heat

MARCH 1943

Front Cover Photograph courtesy Shell Oil Co.

Names in the news

Lt. Col. Allen A. Putt, formerly of Detroit Lubricator Co., was married on February 22, to Hazel Grace Hayes, opera and concert singer, of New York and Kansas.

John James, for seven years technical secretary for the American Society of Heating and Ventilating Engineers, New York, started his new duties with Iron Fireman Mfg. Co., Cleveland, on February 1.

L. N. Hunter, vice-president of National Radiator Co., Johnstown, Pa., has joined the WPB Plumbing & Heating Division as a consultant on cast iron boilers and radiators.

Gerald E. Otis, vice-president, Herman Nelson Corp., Moline, Illinois, has been appointed consultant on extended surface heating equipment which includes unit heaters, unit ventilators, and similar products, for WPB.

Leslie R. Taylor, vice-president of International Heater Co., Utica, N. Y., is WPB consultant on warm air furnaces.

Raymond S. McKeough has been named OPA Regional Administrator in Chicago, covering Illinois, Wisconsin, Iowa, Nebraska, Minnesota and the Dakotas. The appointment of Mr. McKeough, former member of Congress, was announced by Price Administrator Prentiss M. Brown to succeed John C. Weigel, resigned.

H. A. Malcom has been appointed assistant to Chrysler Airtemp's sales vice-presidents, Paul B. Zimmerman and I. C. Baker. Mr. Malcom's successor as sales supervisor for the Southern Division is Everett A. Ham, former district manager.

John M. Frank, president of Ilg Electric Ventilating Co., Chicago, has been elected president of the National Association of Fan Manufacturers.

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Editorial leaks

Forced conversion of oilfired heating plants already is posing some tough problems, and any extension of the program to smaller installations must complicate the problem still further. It is typical that all the problems that need official help to solve are in somebody else's department.

One eastern commercial building recently forced to convert to coal was told, for instance, that coalfiring would require three union firemen on eight-hour shifts around the clock, regardless of the fact the building was closed and the fires banked for half the time. Rationing boards, PAW, and the War Manpower Commission, all were sure an appeal from such a demand should be handled by some other department. That was a hot potato none of the otherwise authoritative officials wanted left on their desks.

Coal supply is another problem most of the departments had rather ignore than face. There are acute shortages of suitable coal in many areas, but statements out of Washington dismiss the problem with broad statements about there being enough total coal, and people should not be too choosy about the kind and quality of the supply. That brand of "help" solves no problems. The New England anthracite user with a basement full of steam coal is going to be cold in spite of Washington and the statements. Many combination coal and oil dealers in the East admit that it is easier to supply their oil customers than it is to get coal their customers can use.

If the current campaign to frighten oil users into the arms of the coal trade is moderately successful this year, the country faces a coal shortage of major proportions in the winter of 1943-44. This assumes that labor leaders will consent to an uninterrupted supply of both anthracite and bituminous coal this summer. Anything short of full production will multiply the seriousness of the problem.

It seems apparent that the current fuel situation is following the pattern of manpower, rubber, food and service. Officials seem willing to solve an immediate problem by creating two in the future. This pyramiding of trouble must wind up in hopeless chaos that will force a sane and logical course. Oilheating is a necessity in hundreds of thousands of Northern American homes, and telling homeowners to forget it does not diminish the necessity. "Convert to coal," is an excuse, not a solution.

◈

In the midst of official pessimism about the future of oilheating, the industry is starting on a period of intensive planning for the post-war period. Individual manufacturers are designing equipment and planning production for a market that crepe-hangers say will not exist.

Our political system in this country has not yet reached the state where people's desires are dictated by public officials, and until that time comes, we are betting on the initiative of private industry, and the oil heating industry in particular, to develop its products and its markets.

No convincing figures have yet been revealed to indicate any long-term oil shortage, and informed members of the oil industry admit privately that they can see no possibility of any dearth of distillate in the post-war period. In fact, many of them see distillate oils as a surplus problem. This may be an extreme view, but it is significant that there is not likely to be any crippling shortage.

The public wants oil heat, and the public will be served. Those with other products to sell are now trying to push them by scare tactics, threats and official pressure in the guise of a war emergency. Those who have something that will benefit the public should be selling it to the public, not to the war agencies in Washington. Permanent markets are not created by official decree in democracies.

Careful planning and progressive development of oilheating equipment are essential to the industry. We must be able to offer better and more efficient equipment in the future. With constant progress as a proven policy the industry will weather any storm of official pessimism.

◈

The rigors of fueloil rationing are being experienced by the folks on the Pacific Coast. Though they got started late in the heating season, the forms and the filing requirements were no less baffling to the layman than they had been earlier to people in other rationed areas.

Associated Press dispatches from Seattle report that Superior Judge William G. Long wrote to his rationing board:

"Gentlemen:

"I have filled out this application to the best of my limited ability, but I'm not at all sure it fully complies with the requirements of OPA.

"I have had only seventeen years of active law practice and ten years on the Superior Court Bench. Therefore, I do not feel competent to thoroughly understand all the requirements "

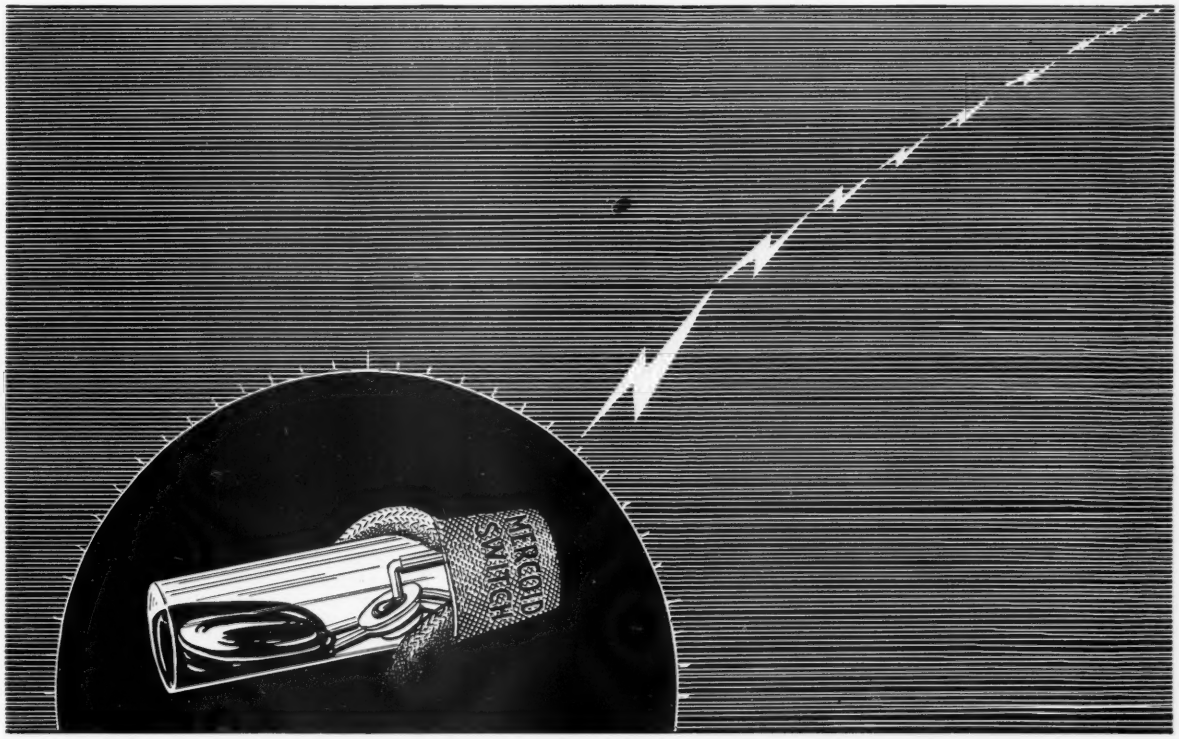
◈

In the interest of true oil conservation it is time PAW and WPB took a realistic view of the situation and planned some changes in L-56. If history is worth anything, it is to record experience in order to profit by past human error and success. From past experience with L-56, it is obvious that it is standing in the way of oil saving.

As the order now stands, it forbids the delivery of oil unless standby facilities "are being operated . . . to the greatest possible extent." This obviously was written to cover commercial and industrial jobs where standby facilities are common, but zealous field personnel have interpreted the section to apply to domestic installations equipped with removable grates. By this interpretation delivery of oil is barred to those who otherwise would be encouraged to try to save oil by burning coal in times of serious local shortage.

There is too little interest in WPB in oil conservation. There is an enthusiasm out of all proportion to its official function for oil conversion. Amendment of L-56 to permit serious attempts at oil conservation, and a zeal for other oil-saving devices at least equal to that for oil-eliminating conversions, would go far to show the public and the trade that the bureaus are as interested in winning the war as in grinding an axe.

Domestic oilburner users have resisted conversion for solid economic reasons, and there is no reason to believe they will be any more interested in the future than they have been in the past. The efforts made during the last winter to save oil indicate an economic and patriotic interest in cutting oil consumption. This effort should be encouraged and fostered.



IT HAS THE ENDURANCE OF PROVIDING

MILLIONS

OF "MAKES" AND "BREAKS" IN THE ELECTRICAL CIRCUIT

The vital part of any automatic control is the switch. That is why you will find a mercury switch in every Mercoid Control.

Mercury switches, made the Mercoid way, assure unfailing performance under all operating conditions. They are never affected by such deteriorating elements as dust, dirt, moisture or corrosion. Nor are they subject to such contact troubles as oxidation, pitting or sticking of contacts.

A mercury switch made the Mercoid way, provides an electrical contact designed for millions of perfect operations. That is the answer to the question, why Mercoid Controls have such long life.

MERCOID DA LIMIT CONTROLS

AVAILABLE FOR PRESSURE OR TEMPERATURE

These sturdily constructed Limit Controls are designed for heavy duty automatic heating equipment. They are also widely used for many other types of industrial applications where accuracy and dependable service are essential requirements.

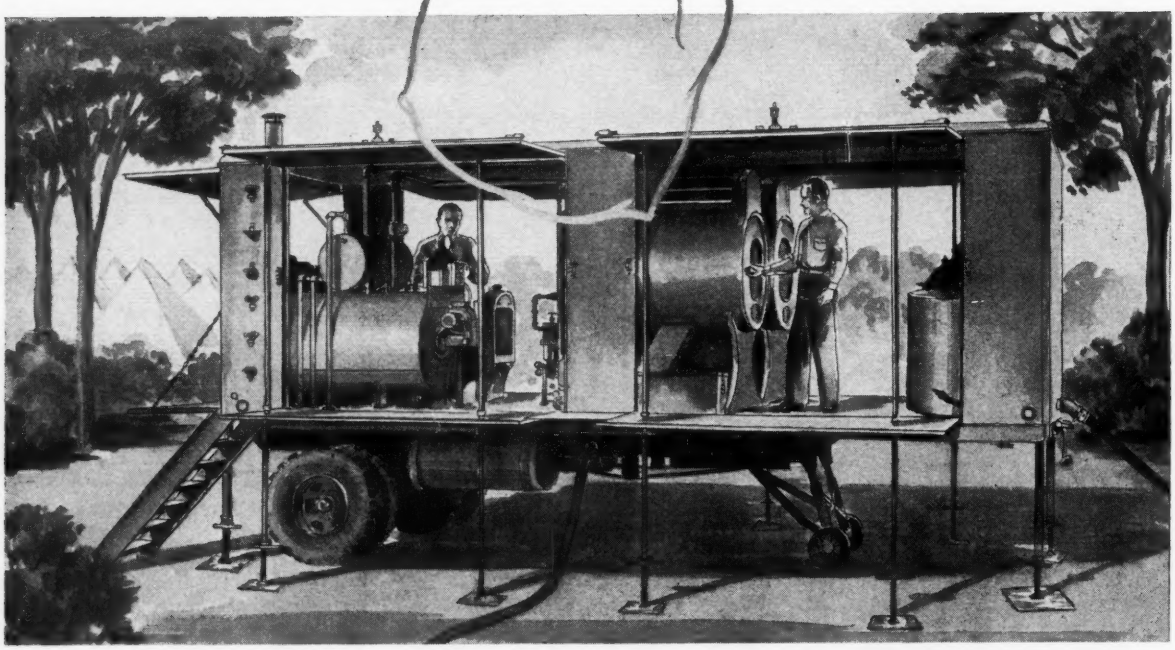
The outside double adjustment is a special feature that greatly simplifies the setting of the control at the desired operating points. Direct reading of setting eliminates calculations—an important factor considering the newly trained workers in many plants.

Various ranges available. Write for Mercoid Catalog No. 600.

THE MERCOID CORPORATION • 4213 BELMONT AVENUE • CHICAGO, ILLINOIS

Fuel oil is oil heat

PICK UP LAUNDRY FOR 10 MILLION



FANTASTIC ISN'T IT . . . WASHING the clothing for ten million men . . . men who can't be particular about how dirty they get because they are fighting a war . . . men scattered over thousands of miles on the battlefronts of the world. But that order is only one of many that our great Army must take . . . and fulfill.

To do the job and at the same time kill germs of infection that hide in the clothing of a fighting man, the Army has designed a laundry truck on wheels. Hooked to a supply truck it rolls right along after the army . . . washes their laundry in short order and returns it to them . . . fresh and clean . . . free from germs.

Water for this laundry unit is pumped from any stream . . . the water is made chemically pure, heated and the washing done . . . just as easily as your wife washes the weekly laundry.

York-Heat is proud of its part in making the controls, combustion chambers and oil burners for these field laundries. Each unit is made to rigid specifications because no failure may happen while the unit is far from repairs.

The oil heating equipment you need for your trade are going into war uses such as this. Until the war is won your customers must wait. Then and then only can we again return to the manufacture of the finest oil heating equipment made . . . units you will be proud to sell and service. On our drawing boards and in our testing laboratory these units are taking shape and breaking all past records for performance. We are just as anxious as you to put these new units on the market . . . but now we must do our part to speed the Victory.

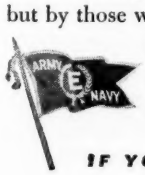
OIL HEATING EQUIPMENT BY YORK-HEAT

YORK OIL BURNER CO., INC. YORK, PA.
A SUBSIDIARY OF THOMAS SHIPLEY, INC

Down to river's edge from the northwest, land of the tall timber, come giant Mack trucks bearing thirty-ton loads of logs . . . cut from centuries-old trees for the war needs of today.

TIME DOES TELL . . . PLENTY!

The Mack trucks you see on the road today are of all capacities. But there's one thing they have in common. *Being Macks, they're built to last!* That's a basic Mack advantage, doubly important in wartime when replacements are hard to get. Seven of every ten Macks built ten years ago are still on the job. For forty-three years Mack trucks have established a record for long life that is still gaining on home front and battle front alike. The expression "Built like a Mack truck" was not coined by us, but by those who watch Mack trucks at work.



Mack Trucks, Inc., Long Island City, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.

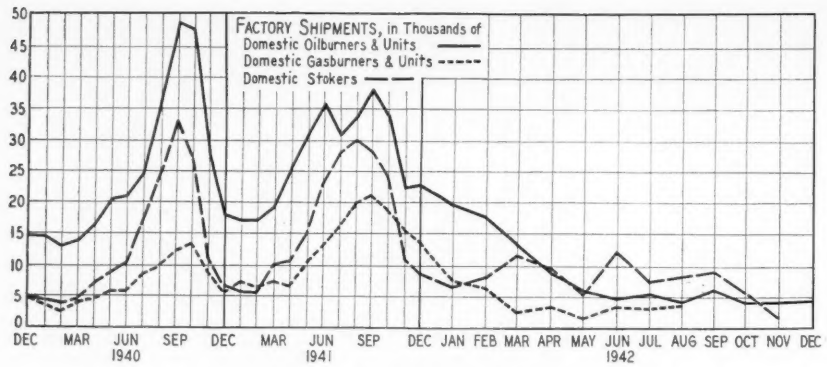
Mack

TRUCKS
FOR EVERY PURPOSE
ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY . . . IF YOU PLAN TO GET ONE, YOU'RE WISE!

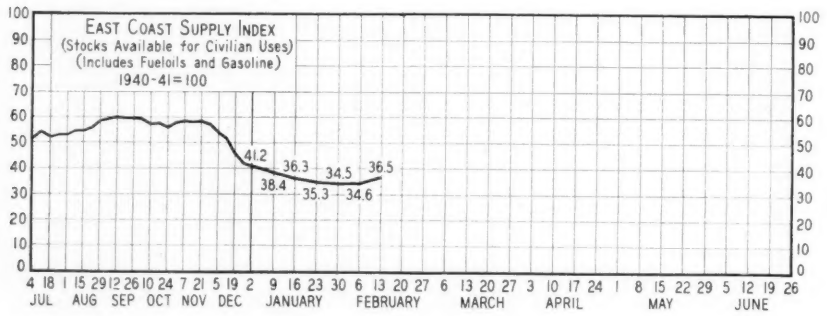
fueloil & oil heat


FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Gasburners & Units
Domestic Stokers
DEC MAR JUN SEP DEC MAR JUN SEP DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1940
1941
1942

Shipments of Oilburners and Units

Adjusted to include manufacturers other than the 148 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	DECEMBER			TWELVE MONTHS		
	1942	*1941*	*Percent Change*	*1942*	*1941*	*Percent Change*
Conversion	2,345	18,211	—87.0	69,337	250,727	—72.2
Boiler units	642	2,080	—64.3	9,961	33,474	—70.3
Furnace units	1,566	2,562	—38.8	19,756	47,891	—58.8
All domestic	4,553	22,853	—80.0	99,124	332,092	—70.3
Commercial	5,590	3,935	+42.1	60,490	37,482	+38.1
Total	10,143	26,788	—62.3	159,994	370,572	—56.8


EAST COAST SUPPLY INDEX
(Stocks Available for Civilian Uses)
(Includes Fueloils and Gasoline)
1940-41=100
41.2
38.4
36.3
35.3
34.5
34.6
36.5
4 18 1 15 29 12 26 10 24 7 21 5 19 2 9 16 23 30 6 13 20 27 6 13 20 27 3 10 17 24 1 8 15 22 29 5 12 19 26
JUL AUG SEP OCT NOV DEC JANUARY FEBRUARY MARCH APRIL MAY JUNE

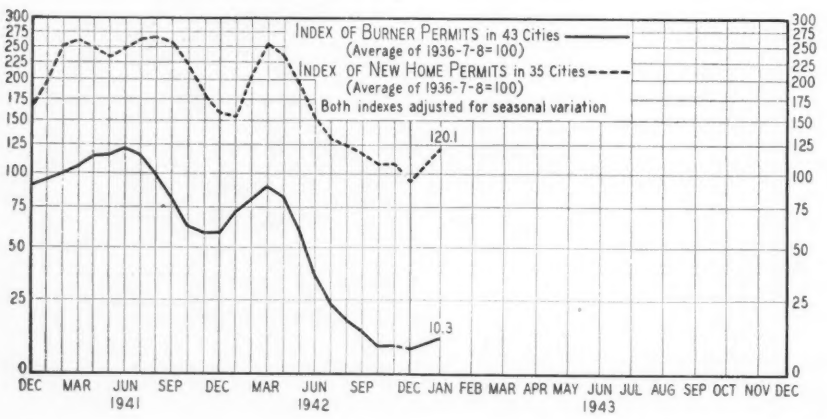
January Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS		BOILER-BURNERS		FURNACE-BURNERS	
	*Top price**	*Low price*	*Top price**	*Low price*	*Top price**	*Low price*
Highest	$338	$195	$660	$395	$715	$395
Lowest	200	169	400	298	425	335
Jan. aver.	263	179	493	369	509	363
Dec. aver.	272	178	518	362	498	360

*Top price key dealers for conversion burners are those whose minimum retail prices are $200 or more; for boiler-burner and furnace-burner units (exclusive of ductwork) those whose minimums are $400 or over.

Price Index: Conversion Burners: Jan. 1940 is 100%

WHOLESALE				RETAIL			
January	100.0	Six months ago	105.0	January	109.1	Six months ago	111.5
December	105.6	Year ago	102.4	December	109.1	Year ago	108.4


INDEX OF BURNER PERMITS in 43 Cities
(Average of 1936-7-8=100)
INDEX OF NEW HOME PERMITS in 35 Cities
(Average of 1936-7-8=100)
Both indexes adjusted for seasonal variation
120.1
10.3
DEC MAR JUN SEP DEC MAR JUN SEP DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1941
1942
1943

Oilheating Trends

INSTALLATIONS OF DOMESTIC oilburners and units in January are estimated at 2,728, a decline of 86% from the same month the previous year. This percentage drop is less than in December, accounted for by the fact that in January peak season operation knocks out more of the oldest burners, necessitating more replacements. Even at the January rate, however, replacements are running at only about half prewar levels. Reporting key dealers had a January decline of 82.9%, while oilburner permits issued in 40 representative cities were off 88.7%. January installations of 2,728 compare with December 2,077 and November 2,472.

PRICES: With retail prices holding even for the month, on the index, wholesale levels fell more than five points. Part of this drop is due to year-end checkups in which manufacturers found their stocks moving too slowly and determined to do more about it. On the other hand, it is recognized that, with sales volume levels as low as they are, figures are not entirely comparable, month to month. Dealers are asked to state minimum prices rather than average, on both wholesale and retail transactions. In normal times when considerable business is being done, the word "minimum" means more than today. At present a dealer may sell only one burner in a month and its wholesale or retail price would be his minimum, whereas the burner might have been a three or four-gallon size. Yet while the price data may not be as accurate now as in peacetime, for such reasons, they are of considerable value for recognizing longer-period swings.

STOCKS: Reporting key dealers had on hand an average of 23 domestic burners and units January 31, showing no appreciable change from the previous three months. The explanation for this, in view of their sales, continues to be elusive, but probably indicates that when they make a replacement sale they pass along the A-10 priority to get another burner from the factory. Total dealer stocks are about 18,100. The latest month for which manufacturers' stocks are known is December. On December 31 factory stocks of burners and units were 39,873, against 40,682 at the beginning of the month. Shipments during the month were 4,553 and new

factory production 3,744. All of these figures relate to domestic burner and unit sizes, not commercial.

SERVICE INCOME: Reporting dealers had an average service department income in January of $2,622, up 19% from $2,203 a year ago. This compared with $3,080 in December and $1,986 in November.

HEATING EQUIPMENT: Warm air furnaces shipped by 100 manufacturers in 1942 were 192,712 units, compared with 349,411 in 1941, according to Census Bureau reports. Factory dollar value was $15,136,172, against $28,289,610.

Complete winter airconditioning units shipped in 1942 numbered 63,003, while in 1941 they were 168,199. Values in 1942 were $9,157,832, and in 1941 were $27,104,688. These units include furnace, blower, humidifier, filter.

RATIONING RECOMMENDATIONS: Because rationing changes for next season are now being studied by the Division in Washington, dealers were asked for suggestions. Typical are these:

Issue a clear order on what fuel theatres and other amusement houses must use next winter. . . . Get a definite point where conversion starts, in minimum gallons. . . . Simpler forms for coupons. . . . Eliminate numbering of coupons (several suggested). . . . Eliminate periods of purchase (several). . . . Have an acknowledgment form showing amount customer is allowed, to make possible larger drops than under present coupon and period system. . . . Local boards should not try to shift decisions to oilburner and oil men. . . . In each board have at least one person exclusively on fueloil. . . . Fill every tank this summer. . . . Allow consumers to have for use next season any surplus they saved this year. . . . Better board and field administration by far. . . . Use coupons of fixed value throughout season. . . . Allow for ceiling height. . . .

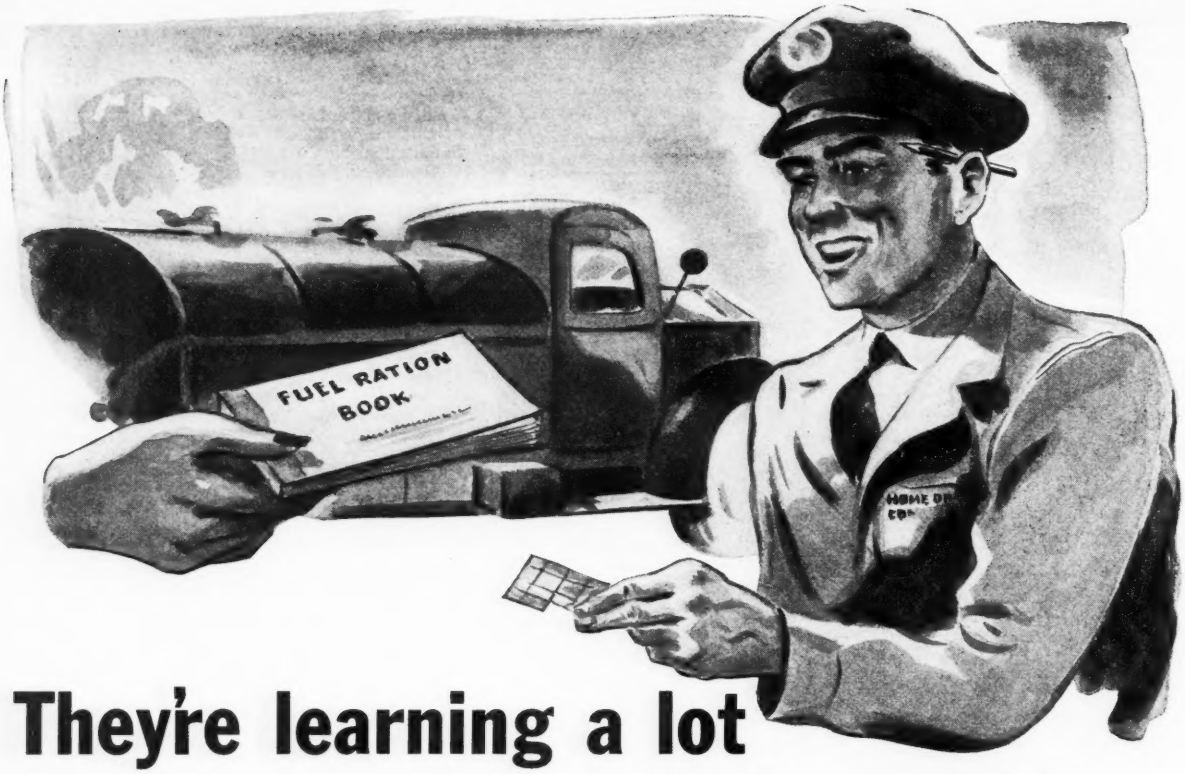
Reimburse anyone who converts to coal for conversion cost. . . . Before next season be definite about who must convert; get it done; then those eligible for oil should get enough. . . . Raise the 50 gallon emergency fill to 100 gallons; it costs the distributor too much to drop 50 gallons. . . . Deliveries should be pooled. . . Eliminate rationing to users under 3,000 gallons; ration those between 3,000 and 10,000; convert all over 10,000, if convertible. . . .

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
January		12 MONTHS			January		12 MONTHS	
1943	1942	1942	1941		1943	1942	1942	1941
0	2	..	379	Albany, New York	..	..	..	..
0	207	1488	5074	Baltimore, Maryland	91	137	1425	4528
..	..	..	..	Binghamton, New York	0	2	20	97
..	..	..	..	Bloomfield, N. J.	0	2	118	210
..	138	946	1697	Boston, Massachusetts	1	12	198	440
0	57	201	678	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, New York	..	8	130	202
..	..	..	..	Des Moines, Iowa	0	48	531	831
0	72	662	1058	Detroit, Michigan	169	379	7613	9879
0	13	52	227	Elizabeth, N. J.	0	2	19	31
0	12	55	230	Freeport, New York	..	..	..	..
..	..	..	..	Greenwich, Conn.	0	2	23	180
..	..	..	..	Hackensack, N. J.	0	1	40	151
1	49	376	894	Hartford, Conn.	..	..	..	..
14	73	402	1126	Hudson County, N. J.	..	..	..	..
0	3	51	124	Irvington, N. J.	0	0	38	12
..	..	..	..	Lynn, Massachusetts	0	12	27	144
..	6	70	181	Meriden, Conn.	..	..	..	..
4	20	199	557	Milwaukee, Wisc.	4	31	673	980
5	62	368	1180	Minneapolis, Minn.	1	32	377	1172
0	9	..	187	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	0	0	6	12
1	19	86	313	Mt. Vernon, New York	..	..	..	..
1	31	182	765	Newark, New Jersey	..	..	..	..
5	18	135	338	New Bedford, Mass.	..	..	..	..
1	18	72	474	New Haven, Conn.	..	..	..	..
2	2	32	30	New Orleans, La.	..	..	..	..
0	9	47	175	New Rochelle, N. Y.	0	1	19	56
..	477	3339	14623	New York City (total)	..	..	..	..
..	370	2599	11893	Brooklyn-Queens	..	..	..	..
6	107	740	2730	Manhattan, Bronx, Rchd.	..	..	..	..
128	111	1271	942	Norfolk, Virginia	73	123	1178	920
2	0	22	21	Oakland, Calif.	..	..	..	..
4	28	274	963	Omaha, Nebraska	0	66	298	1015
0	7	23	100	Orange, New Jersey	0	1	14	18
0	6	32	141	Passaic, New Jersey	..	..	..	..
0	8	44	230	Paterson, N. J.	0	3	45	161
..	295	..	7233	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	0	8	52	46
0	9	67	342	Portland, Maine	0	2	111	171
3	251	994	3211	Portland, Oregon	708	59	2275	1679
..	4	..	51	Poughkeepsie, N. Y.	..	..	..	..
0	66	204	714	Providence, R. I.	0	5	40	175
..	..	..	..	Reading, Penna.	0	3	8	53
1	8	83	440	Richmond, Virginia	5	47	367	592
0	68	203	405	Rochester, N. Y.	..	..	..	..
0	18	61	265	Rockville Center, N. Y.	..	0	14	158
0	6	19	123	Salem, Massachusetts	0	2	9	30
5	50	335	516	St. Louis, Missouri	0	50	358	..
3	59	403	1545	St. Paul, Minnesota	1	16	200	792
2	32	244	505	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Washington	61	131	1863	2981
..	..	..	..	Springfield, Mass.	0	9	506	304
0	6	54	242	Stamford, Conn.	..	..	..	..
1	7	23	71	Syracuse, New York	0	3	141	110
..	..	..	..	Trenton, New Jersey	0	0	2	6
..	..	..	..	Utica, New York	..	0	79	37
2	231	892	3095	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	0	2	23	123
4	9	70	279	White Plains, N. Y.	0	1	3	54
2	12	..	..	Wilmington, Delaware	0	2	17	147
4	54	223	751	Worcester, Mass.	..	..	..	..
..	41	147	489	Yonkers, New York	..	..	..	..
201	1763	14471	44774	*Totals*	1114	1187	18860	28497
—88.7	..	—67.7	..	*Percent Change*	—6.6	..	—32.9	..

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

. . . Next season's problems will take care of themselves if all storage is filled this summer; the present plan will work if oil comes through. . . . More accurate check on home space and special requirements. . . . Local boards should contain men who understand heating. . . . Base ration exclusively on cubic feet; disregard past consumption. . . . Have some coupons on each sheet of larger denomination (several suggested). . . . Furnish dealers with ration board charts, so when customers complain to them they can check for errors. . . . Separate ration calculations for home heating distillates, range oil and residuals. . . . Base deliveries on accumulated degree-days instead of periods; this would permit larger deliveries.



They're learning a lot about fuel saving!

Adversity is a great teacher. Thousands of dwellers in homes large and small are today finding out things they never knew about heating economy. Some of them are learning the hard way — discovering for the first time that their heating equipment is wasteful of fuel, and that restricted rations mean discomfort. Now they're watching the fuel gage with hawk-like intensity, and praying for an early Spring.

Others, however, have a self-satisfied look when the subject is broached. These are likely to be the people who have Fitzgibbons Steel Boilers or Air Conditioners. They have perhaps shut off a spare room or so, learned to use care in other ways, and without sacrifice of comfort are keeping within their budgeted fuel ration. These people are feeling pretty thankful today, for the excellent judgment of their dealers who recommended "Fitzgibbons."

BUY U. S. WAR BONDS and STAMPS

Among the less fortunate, more and more often you hear the plaint—"Wish I had a Fitzgibbons — I'll never build another house without one!"

MOST ECONOMICAL IN FUEL — 1886 — THE FITZGIBBONS BOILER

Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK, N. Y. **WORKS: OSWEGO, N. Y.**

Branches and Representatives in Principal Cities

FITZGIBBONS

Steel Boilers and Air Conditioners that make fuel go farther

For Today and Tomorrow

OUR industry is sowing a wide and fertile field today. We can do the job right — or we can be half-hearted about the whole thing.

For one thing, it's important today to make this country's heating equipment last as long and function as efficiently as possible. For another thing, it's important to every dealer and manufacturer in our industry to be remembered tomorrow as the fellow who *really tried* to be helpful when the going was tough. And don't think that last isn't going to count.

For our part, we at Perfex mean to continue giving you all the help we can. You're welcome to any advice or suggestions we can make to help you in your present service problems. And you may be sure that whenever there's a lull in our main job, our plans for a brighter tomorrow for us both are brought up to date.

PERFEX CORPORATION

500 West Oklahoma Avenue Milwaukee, Wisconsin

MAKERS OF

Twin Contact Controls

fueloil & oil heat

IN THE POST AND 37 NEWSPAPERS

A HOME FOR EVERY FAMILY

is the aim of post-war planning

FREE! Exciting new booklet describing the marvels of post-war homes and giving floor plan and arrangement of D. Allen Wright's charming "circular" house above. Mail coupon for your copy!

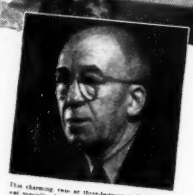
WHAT will American homes be like after the war? How will they differ from the average home of today?

You will find some of the answers in a fascinating new booklet prepared by Timken—yours for the asking.

Read about the "miracles" science and industry have developed under the pressure of war—the new comforts and conveniences that will be ready after Victory. New building methods and materials. "Grouped" mechanical servants. "Black" lighting. "Sealed" corners. "Picture" windows.

Timken will make its contributions to this better way of living—not only with improved automatic heating and air conditioning, but with other new products, all built with the skill and experience that have made Timken Silent Automatic Oil Burners nationally known for their reliability and super-economy.

Don't be afraid to dream! Just mail coupon today for your copy of "Your Wonder Home of Tomorrow," which includes a floor plan of the house shown above.



This charming two or three-bedroom modern home was specially designed with a view to the future by D. Allen Wright, widely known American architect along with many privacy and "built-in" features the post-war home will be planned to save time, steps, work and, above all, upkeep cost.

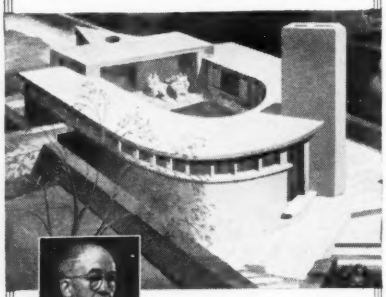
EDITION LIMITED! MAIL COUPON TODAY!

TIMKEN SILENT AUTOMATIC DIVISION
1001 Clark Avenue, Detroit, Michigan
Send free copy of D. Allen Wright booklet to:
Name
Street Address
City & State
BUY WAR BONDS

TIMKEN
Silent Automatic
OIL HEATING PRODUCTS FOR THE HOME
Division of THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan

A HOME FOR EVERY FAMILY

is the aim of post-war planning



D. Allen Wright tells of post-war designs

D. Allen Wright, widely known American architect, who designed the charming "circular" house above, states that privacy, controlled light, sound and heat; larger window areas, with greater flexibility in interior arrangements and lower upkeep costs, are all a part of the plan for the future. Write for your copy of a free booklet on the D. Allen Wright house above.

Four and one-half million new homes will be built immediately following Victory. This is the belief voiced by the U. S. Department of Commerce. Science and industry will make great contributions to these new homes to assure more ease and leisure. And Timken will contribute to this better way of living, not only with improved automatic heating and air conditioning, but with other new products for greater home comfort, convenience and health.

Timken helps you *NOW!*

The Timken Factory and Timken Dealers are doing everything possible to keep oil burners operating efficiently and economically. You can help by having your burner checked regularly by an authorized Timken Dealer. If you own a Timken, you know from experience the extra comfort Timken owners are getting even under the most severe rationing conditions, due to the super-economy of the Timken Oil Burner. *Phone the nearest Timken Dealer listed below for a checkup and regular preventive service.*

TIMKEN
Silent Automatic
OIL HEATING PRODUCTS FOR THE HOME
Division of THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan

This complete new Timken program, built around the basic, interest-compelling theme of post-war planning, is currently running in full pages in the Saturday Evening Post and in dominant space in 37 newspapers. Yet this is only a part of *present-day* Timken factory support for its dealer organization.

Building for the FUTURE!

America is fighting for the future . . . planning for the future . . . building for the future. On the lips of every sailor, in the heart of every soldier, in the mind of every worker on the war production front, is the hope of a bigger and better future for all.

The greatest buying volume in American history is now held up, awaiting Victory.

When that great day arrives, where will you be? At the post—ready to go? Backed up by a manufacturer whose record of successes is long and brilliant and whose products have proved their ability to *pay out*—in profits to dealers and extra satisfaction to users?

Or, will you be among the thousands who are "looking for a line?"

The Timken factory is doing everything possible *now* to keep existing oil burners operating efficiently and economically, and to help Timken dealers in their vital task of keeping the home fires burning. The products we manufactured "yesterday" are adding to their good reputation for thrift and economy today.

After Victory, we will be ready with improved, automatic heating and air conditioning and other new products for the home.

Regardless of your present connections or position in the field, it will pay you to talk to Timken concerning these products and the profit possibilities they offer you.

For Production "Well Done"

It's Co-operation that counts!

In peace times, Timken gives the kind of co-operation that counts with dealers. Strong national magazine and newspaper advertising. Complete dealer sales and advertising plans. Sales portfolios, sales schools, service schools—everything that insures a permanent, profitable business for dealers.

TIMKEN *Silent Automatic*

Division of THE TIMKEN-DETROIT AXLE COMPANY, Detroit, Michigan

fueloil & oil heat

Oil Fuel in 1960?

Axe-Grinders Point with Alarm to Industry's Doom

By
Robert Gray

ADMITTING THAT FUELOIL SUPPLIES are, and will continue to be, short in some parts of the country for the duration, due to transportation shortage, what are the probabilities of adequate supply in the years following the war?

Oilheating men need the answer to that question, and it is a bit difficult to reconcile the conflicting statements and rumors flying about in newspapers and other periodicals, some predicting that petroleum products will soon become too scarce and valuable to be allowed in householders' basements for the unworthy purpose of satisfying the lusts of the flesh.

Forecasting the early extinction of oil reserves is not a new pastime; it has been going on in high places since Drake's first well in Civil Wartime Pennsylvania; all it takes is a yen for headlines and a certain amount of daring. The predicter can't be immediately checked up . . . no one is going down into the wells and ladle the crude through a barrel . . . and by the time people have learned better years have elapsed and the prediction forgotten.

Among seers who have been taken seriously in their time, and within the present generation, earliest was Ralph Arnold, who in 1914 convinced most of the public, and some industry men, that our total underground oil reserves were six billion barrels. Actual production since then has been 21 billion barrels.

Next, David White, chief of the U. S. Geological Survey, felt in 1919 the urge to prophesy that total reserves were 7¾ billion barrels and that the last drop would be gone in 1937. Because that idea had brought good headlines, the Survey tried it again the next year, and advanced the date of extinction to 1938.

The next three widely-quoted estimates were in 1921, 1925 and 1934, when the American Association of Petroleum Geologists, The American Petroleum Institute and the U. S. Geological Survey estimated, respectively, that reserves were 9 billion, 5 billion and 13 billion barrels.

Perhaps oil supplies in the ground will one day run out, but the past history of predicting doesn't warrant taking too seriously today's gloomy prophets. From another angle, most pessimistic forecasts of the present are a trifle suspect; in each instance there seems to be an axe to grind. This does not mean that such forecasts are deliberate skulduggery, far from it, but in cases of doubt it is human to tip the scale toward what you want to prove.

Contradictory Statements

Peculiar are two important forecasts from high sources in February, contradicting each other. The Committee on Cost and Price Adjustment of the Petroleum Industry War Council disclosed that present consumption has run ahead of new discoveries in each of the past four years, in its plea for a 25¢ rise in crude price to stimulate new discovery (reported elsewhere in this issue). Contrasted to this, the American Petroleum Institute report shows that new reserves discovered have exceeded annual production in each of the past six years. API is the industry's traditional fact-finding organization.

The Petroleum Administration for War has blessed the scarcity figures of PIWC by using them in public press releases. They are helpful in supporting the mandatory conversion theory. Congressmen from oil producing states are helping cry coming doom, with their eye on the two-bit crude rise. Coal state congressmen, coal and stoker industry men have always sniffled over our country's plight when the oil is all gone, so why not tax it to slow down its use for heating. Extracts from the American Petroleum Institute Report follow:

"The American Petroleum Institute's Committee on Petroleum Reserves herewith submits its report as of December 31, 1942. It estimates that proved reserves of crude oil in the United States as of that date amounted to 20,082,793,000 barrels, which is 493,497,000 barrels higher than its estimate of January 1, 1942 (December 31, 1941) of 19,589,296,000 barrels. This increase in total estimated reserves during 1942 is the net result of the discovery and development, through extensions and additions to pools discovered in prior years and through the discovery of new pools in 1942, of a total of 1,878,976,000 barrels of new oil as against 1,385,479,000 barrels of crude oil produced during the year. These figures include all grades of crude oil and condensate known to be recoverable under existing economic and operating conditions. They do not, however, include any estimate of the reserves which may be found in areas known to be favorable to the accumulation of oil but which are as yet untested.

Only Proven Reserves

"It should be emphasized that the estimates in this report refer only to reserves proved by drilling and production performance. In the case of a new discovery, where only a few wells have been completed, estimates of the total quantity of oil contained in the pool, when made shortly after discovery of the pool, are hazardous and subject to considerable error. For this reason a relatively small area is assigned to such a pool but not without full realization that subsequent drilling may extend the area and therefore the quantity of oil proved to be in the pool. The total of new oil estimated in this way in any given year will always be comparatively small and the total of new oil through extensions comparatively large. Again, as knowledge of the factors affecting production and well performance become available and are studied, re-

serves in older fields can be estimated with greater precision and revised accordingly. Thus we are dealing with essentially known data in making these estimates of reserves. Therefore new discoveries plus extensions, with whatever revisions are needed, are an inventory of the new proved reserves."

The API's Committee on Petroleum Reserves making the report consists of: J. Edgar Pew, chairman, Sun Oil Co., R. F. Baker, The Texas Co., D. V. Carter, Magnolia Petroleum Co., Frank R. Clark, The Ohio Oil Co., Alexander Deussen, Consulting Geologist, Houston, Tex., G. Clark Gester, Standard of Calif., F. H. Lahee, Sun Oil Co., J. M. Sands, Phillips Petroleum Co., Fred Van Covern, American Petroleum Institute, Theron Wasson, Pure Oil Co. and Fred E. Wood, Standard of Indiana.

The accompanying tables I and II are from the API report.

Bureau of Mines Report

Assuming that the time ever comes when natural petroleum reserves will have been exhausted, we can get just as good crude from our country's shale deposits, says the U. S. Bureau of Mines in a February 19 release. Moreover, says the Bureau, our shale deposits contain about 92 billion barrels of petroleum, or nearly five times as large a reserve as known fields of natural petroleum contain. Paragraphs from the release announcing the new report follow:

"Preparing for the time when the United States may have to utilize extensive domestic oil shale reserves as a source of gasoline and other petroleum products, the Bureau of Mines has issued a detailed report describing proposed methods of mining shales in Garfield County, Colorado, where the Bureau already has produced shale oil in experimental retorts, Dr. R. R. Sayers, Director of Bureau of Mines, announced.

"In analyzing a report prepared by E. D. Gardner of Rolla, Mo., regional engineer for the Bureau's Central Region, and Charles N. Bell, one of the Bureau's consulting engineers, Dr. Sayers stated that the mining methods prescribed for the Garfield County shales should be applicable to many other American oil shales under certain conditions.

"The Bureau long has advocated additional research in the recovery of oil from domestic shales, since geologists estimate

TABLE I—**Estimated Proved Petroleum Reserves in the United States**

(*Barrels of 42 U. S. Gallons*)

	Proved Reserves as of January 1, 1942 (December 31, 1941)	*Proved New Reserves (Discoveries, Extensions and Revisions) in 1942**	*Production During 1942 (Bureau of Mines Preliminary)*	*Proved Reserves as of December 31, 1942 (Cols. 1 & 2 less 3)*
Arkansas	295,017,000	31,637,000	26,628,000	300,026,000
California	3,323,147,000	121,025,000	248,326,000	3,195,846,000
Colorado	23,443,000	18,220,000	2,220,000	39,443,000
Illinois	333,714,000	79,520,000	106,456,000	306,778,000
Indiana	22,873,000	15,643,000	6,743,000	31,773,000
Kansas	689,795,000	94,816,000	97,636,000	686,975,000
Kentucky	36,450,000	2,675,000	4,472,000	34,653,000
Louisiana	1,330,134,000	227,718,000	115,726,000	1,442,126,000
Michigan	55,620,000	29,977,000	21,754,000	63,843,000
Mississippi	80,207,000	—10,477,000**	28,833,000	40,897,000
Montana	86,124,000	7,508,000	8,074,000	85,558,000
Nebraska	4,014,000	— 600,000**	1,237,000	2,177,000
New Mexico	674,817,000	34,224,000	31,544,000	677,497,000
New York	59,816,000	none	5,421,000	54,395,000
Ohio	37,404,000	1,160,000	3,543,000	35,021,000
Oklahoma	1,035,820,000	73,797,000	140,690,000	968,927,000
Pennsylvania	170,897,000	none	17,779,000	153,118,000
Texas	10,975,641,000	1,053,457,000	483,371,000	11,545,727,000
West Virginia	50,011,000	750,000	3,574,000	47,187,000
Wyoming	304,053,000	97,911,000	31,392,000	370,572,000
Miscellaneous***	299,000	15,000	60,000	254,000
Total United States	19,589,296,000	1,878,976,000	1,385,479,000	20,082,793,000

*This column includes proved reserves discovered in new fields plus proved reserves added by extensions of pools only partly developed a year ago, plus or minus any revisions in former estimates. Only a limited area is assigned to each new descovery even though the Committee may believe that eventually a much larger area will produce, for in this report we are concerned only with actually proved reserves.

**No discoveries; previous estimates revised downward.

***Includes Tennessee, Missouri, Utah and Virginia.

Photograph courtesy Shell Oil Co.

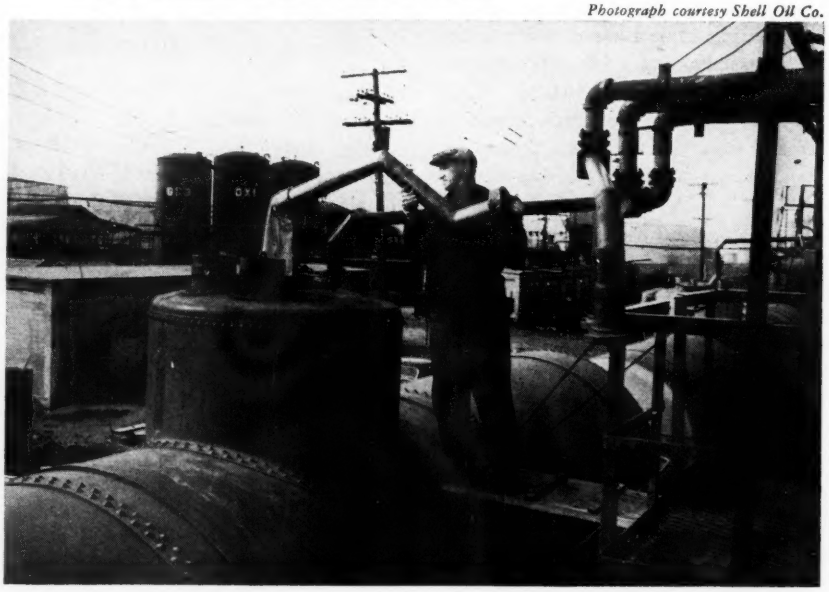


TABLE II—**Summary of Committee's Annual Reports Covering Period 1937-1942**

(*Barrels of 42 U. S. Gallons*)

Year	*Through Revisions of Previous Estimates and Extensions to Known Fields*	*Through New Pools Discovered During Year*	*Total Through New Discoveries, Extensions and Revisions*	*Production During Year*	*Estimated Proved Reserves as of End of Year*
1936	....	....	....	....	13,063,400,000
1937	2,792,790,000	928,742,000	3,721,532,000	1,277,664,000	15,507,268,000
1938	2,243,571,000	810,493,000	3,054,064,000	1,213,186,000	17,348,146,000
1939	2,058,455,000	340,667,000	2,399,122,000	1,264,256,000	18,483,012,000
1940	1,607,012,000	286,338,000	1,893,350,000	1,351,847,000	19,024,515,000
1941	1,538,989,000	429,974,000	1,968,963,000	1,404,182,000	19,589,296,000
1942	1,618,925,000	260,051,000	1,878,976,000	1,385,479,000	20,082,793,000

that about 92 billion barrels of oil can be produced from the Nation's known reserves if suitable retorting processes are developed. By refining, American shale oil can be converted into marketable products similar to those manufactured from crude petroleum. Oil has been retorted on a commercial scale from shale in Scotland for many years.

"Relatively low costs could be expected in mining the oil shale, as equipment best adapted for the purpose could be procured and the most modern practices followed," the report explains. "Mining costs probably would be higher during the first year or two than at a later time when the operations become well organized and the crews properly trained.

"Through their extensive studies of three beds examined in the Naval Oil Shale Reserve No. 1 near Rulison, Garfield County, Bureau engineers report that the room-and-pillar method should be used in working beds described as 20 feet and 44 feet thick, while the caving method of mining would prove best for the section which is 106 feet thick. The report describes the type of equipment needed and the number of employees required for various operations.

Shale Oil Tests

"During 1925-29, the Bureau constructed and operated two experimental retorts which produced oil from oil shales mined in the reserve near Rulison. Sampling in the experimental oil-shale mine developed by the Bureau and drilling in an adjacent tract revealed that there were enough reserves to permit large-scale mining at this location for at least 15 years, the report states.

"The expense of installing and operating commercial-scale mines and crushing plants has been estimated on conditions which prevailed in 1931, but it would be somewhat higher today because of increased costs of material and labor, according to the report.

"In bringing the figures up to date, one must estimate today that the wages in Western Colorado are about 20 percent higher than in 1931 and that the cost of equipment and supplies would be about 33-1/3 percent greater," Dr. Sayers explained. "Present-day estimates on the cost of mining the shale are $1.22 per ton from the 20-foot bed; 87 cents from the 44-foot bed, and 66 cents from 106-ft.

"From operation of the experimental retorts, Bureau engineers estimated that 2,000 tons of oil-shale daily from the 20-foot bed would produce about 84,000 gallons of oil; 5,000 tons from the 44-foot bed would produce 210,000 gallons; and 10,000 tons from the 106-foot bed, 225,960 gallons.

"Colorado has the most extensive reserves of oil shale in the Nation. In 1928, the Federal Oil Conservation Board reported that this state alone has sufficient oil-shale reserves to produce nearly 48 billion barrels of oil. The Naval Oil Shale Reserve No. 1 near Rulison is part of the extensive Green River formation which is found also in Utah and Wyoming."

Our country is currently producing two-thirds of the world's oil output, as shown in Table III, which gives 1941 and 1942 production of both natural and synthetic petroleum products in important countries. These estimates are by V. R. Garfias, R. V. Whetsel and J. W. Ristori of the Foreign Oil Department of Cities Service Oil Co., a leading source of foreign oil data for some years.

If this war is to be won by oil, there should be little question of the outcome.

Some alarmists have feared that when peace returns there will be other uses for petroleum that will substantially lessen the amounts available for fueloil. Oftenest mentioned is the quantity needed for making synthetic rubber, and they express a belief that our country will never go back to using natural rubber. Most rubber men feel that post-war synthetic rubber production will run to no more than one-fourth or one-third of our rubber needs.

Their thinking is based on need for world trade balances. If we expect to sell manufactured products for the rebuilding of Netherlands Indies, Burma, Malaya, etc., we must take in exchange their products, principally rubber and quinine.

But, for argument's sake, assume that all post-war rubber is to be synthetic and made principally from petroleum. Without getting technical, a horseback summary of the situation would be:

Total peacetime rubber consumption in the U. S. is 700,000 tons annually. To make a ton of rubber requires 1,500 pounds of butadiene, of which 900 pounds is from petroleum and 600 pounds from grain alcohol. The part that comes from petroleum is normally from the lightest fractions in the distillation process, products like naphtha and lighter. The heavier fractions, like fueloil, would normally not

TABLE III

Estimated Production of Natural Petroleum and Synthetics

(In thousands of 42-gallon barrels)

Available to United Nations	Natural		Synthetic		Total	
	1941	1942	1941	1942	1941	1942
United States	1,404,180	1,385,000	67,680	79,000	1,471,500	1,464,000
Russia	240,000	212,000	1,500	2,000	241,500	214,000
Venezuela	223,000	145,000	1,200	1,500	224,200	146,500
Iran	78,000	76,000	1,000	1,000	79,000	77,000
Mexico	41,200	35,000	1,000	800	42,200	35,800
Columbia	24,400	10,600	900	900	25,300	11,500
Argentina	21,800	22,000	500	600	22,300	22,600
Trinidad	21,200	24,500	200	200	21,400	24,700
Peru	12,900	13,500	1,000	1,000	13,900	14,500
Iraq	12,500	14,800	...	...	12,500	14,800
Canada	6,300	6,400	3,700	3,900	10,000	10,300
Egypt	7,700	8,000	200	300	7,900	8,300
Bahrein Isl.	6,900	7,800	200	200	7,100	8,000
Miscellaneous	17,140	12,400	9,250	9,800	26,190	22,200
United Nations Total	*2,117,020*	*1,973,000*	*88,330*	*101,200*	*2,205,350*	*2,074,200*
Available to Axis Powers						
Dutch East Indies	62,120	9,000	1,000	200	63,120	9,200
Rumania	40,500	41,000	2,000	2,000	42,500	43,000
Germany	5,240	5,400	32,000	46,000	37,240	51,400
Burma	7,800	2,400	100	100	7,900	2,500
Japan	3,300	3,400	5,500	6,900	8,800	10,300
France	500	500	4,100	4,800	4,600	5,300
Poland	3,310	3,400	200	300	3,510	3,700
Hungary	2,600	3,800	100	200	2,700	4,000
Italy, Albania	1,200	1,500	300	400	1,500	1,900
Miscellaneous	200	200	2,000	2,100	2,200	2,300
Axis Total	*126,770*	*70,600*	*47,300*	*63,000*	*174,070*	*133,600*
World Total	2,243,790	2,043,600	135,630	164,200	2,379,420	2,207,800

be touched; in fact their supply would be increased, as they would be the by-product of butadiene production.

But if this process should make fueloil too plentiful, it is possible by cracking and re-cracking down through the heavier fractions, to use most of the barrel of crude to make butadiene. In that case, the residue would not be fueloil.

How many barrels, then, would it take, assuming no useful residue, to produce all of the rubber our country uses, or 700,000 tons? In the complete cracking and re-cracking operation the ratio is about four to one, or 3,600 pounds of crude to make the 900 pounds of butadiene which is petroleum's contribution to a ton of rubber. This is approximately 11 barrels of crude to a ton of rubber, or 7,700,000 barrels to make 700,000 tons of rubber. Thus, it would take only 6/10 of 1% of our normal petroleum output to make 100% of our rubber needs, certainly not much of a threat to fueloil supply.

Not all forecasters of the future of oilheating take the gloomy viewpoint; a number of men in high places have been outspoken in the belief that more people than ever will install oilheating equipment, come V-day. Most recent such statement is by Joel Dean, Director, Fuel Rationing Division, OPA, in "Fuel Oil Industry Letter No. 4," dated February 23, with these opinions stated and signed:

"In spite of the vital necessity for conversion of oil burners now, there are many favorable aspects for the post-war period for the fuel oil and oil burner industries. Some of these indications are:

"1. Wide publicity of all types, resulting in public's increased recognition of the advantages of fuel oil heat.

"2. For the past decade installations have shown an almost constant increase, indicating wider public acceptance.

"3. Improved financial condition of large masses of people who were financially unable to purchase such equipment before the war.

"4. Greatly increased per capita savings through purchase of war bonds and possible forced savings.

"5. Continued development of oil burning equipment for greater efficiency and possible decreased installation costs.

"6. Improved advertising and merchandising techniques by manufacturers.

"7. Greatly expanded transportation facilities for fuel oil, resulting in increased availability and possible decreased costs to consumer.

"8. By greatly increased number of housing projects, et cetera, more privately owned homes, thus more prospects for oil burners.

"9. Increased marriage and birth rate means more family units, thus more prospects for oil burning equipment.

"It is fully recognized that all branches of the petroleum industry are enduring many difficulties in these troublesome times. The coming of Peace will doubtless eliminate these difficulties."

If all of our post-war rubber supply were to be synthetic, its production would require only 6/10 of 1% of our normal petroleum output.

Photograph courtesy Shell Oil Co.

◈

PAUL V. MC NUTT, Chairman of the War Manpower Commission, explains that oil company employees engaged in vital and essential jobs should not leave their work to attempt to get jobs in munitions plants. Most of them are considered by draft officials as engaged in essential activities.

PENNSYLVANIA ANTHRACITE production in the six weeks from New Year to February 13 was 6,995,000 tons, or an increase of only 2.1% from the 6,850,000 tons in the comparable period last year. Stocks February 13 were 435,691 tons, against 836,396 a year ago. Not much progress made toward taking over a large oil conversion load, it seems.

OFFICE OF DEFENSE TRANSPORTATION has authorized the immediate construction of an additional 200 large-capacity tank trailer units for hauling petroleum, bringing to 1,092 the total number of such units authorized since late December. The equipment will be built on order for individual applicants.

LOW PRESSURE CAST IRON boilers may now be built for war housing and civilian replacement needs, in addition to military and hospital requirements, under an amendment to L-187, but output shall not exceed 4½% of 1940 rate of production.

Post-War Markets

Building and Renovation Possibilities Huge

By
A. E. Coburn

The mad scramble to develop cheap heating plants for low-cost houses is a rush to supply only a part of the post-war market. Increased family income will create a demand for housing that new construction cannot possibly supply. Older homes will be renovated and modernized, creating a tremendous potential demand for modern, efficient oilheating equipment.

Most thinking about post-war markets for oil heating equipment brings up a mental picture of a pre-fabricated four- or five-room house set without a basement on a 25 x 50 foot lot, heated by an overgrown space-heater. This may be an accurate picture of thousands of houses that will be built in the next few years, but it is hardly the picture of the "typical" American home of the future, if present indications are correct.

Joe American, whether he runs a lathe or runs a company, has fairly definite ideas about the typical American home, how it should look, how it should be built, and what equipment should be in it. It is going to take as long to educate him to live in a modernistic wood-box as it is to teach him to wear bright-colored clothes. Joe has definite ideas about style. And, further, if he is now living in a trailer or a three-room flat in any of our industrial areas, his dream-bower for the ever-loving wife and the kids is going to be something besides a trailer without wheels. Joe has plans.

This does not mean that Joe & family will resist prefabrication of houses. The family income is derived from prefabricating some other standardized part, or assembling prefabricated parts into conventional designs. It means only that Joe is conservative in his tastes, and careful with his money. He wants a lot for his dollar when he buys a house, and he wants the house to suit him, not some budding architect.

Further, Joe has three or four youngsters that he regards highly. He doesn't want to have to stack them in one room to put them in bed. The boys should have a room, and sister will need a room of her own. That will require three bedrooms in the house, so if he is going to have any place to put the dining-room set, he will have to have a six-room house.

Modernization Important

Shiny, new six-room houses, with or without chromium trim, may demand more out of the family budget than Joe is willing to spend. The $3,500 he has to spend probably will buy more second-hand house than he can get for the same money in a new house. But since this is a permanent home, Joe probably will be in the market for a few new plumbing fixtures, a new roof, and an automatic heating system. The house may already have plumbing fixtures, a roof, and possibly automatic heat, but the post-war world is going to be as comfortable and as up-to-date as Joe can make it for his family, Harry Hopkins notwithstanding.

All this, of course, depends on nearly 60 million Joe Americans working after the war to produce about $150-billion of annual income. Otherwise there will be less building and less modernization than now anticipated. All post-war planning is aimed at maintaining a greatly increased rate of business activity over what we have had before. It is going to be a neat trick to convert industry to peace-time products, and absorb hundreds of thousands returning from the armed forces each week, while maintaining a high production rate, but industry believes it can be done. The building industry is on the list to do $10-billion worth of business a year, or about the volume that it did in 1941.

But the demand for *housing* should not be confused with the demand for *houses*. When a family is holding a very little money any four walls and a reasonably tight roof will do. As the income increases, the family is more particular about the niceities of living, and the expenditure for rent, or its equivalent, goes up with the income. Americans spend just about one-fifth of their incomes after taxes and savings for housing. This ratio remains fairly constant.

(*Continued on page 55*)

Coalfired Oil Conservation

Bucket-A-Day Water Heater Cuts Burner Runs

THERE IS NO DOUBT about it, burning coal generates heat that can be used to warm a house. What is equally important to oilheating men, coal can be burned to warm a house without removing the oilburner. Though coal men and their fellow-travelers won't like it, the fact remains.

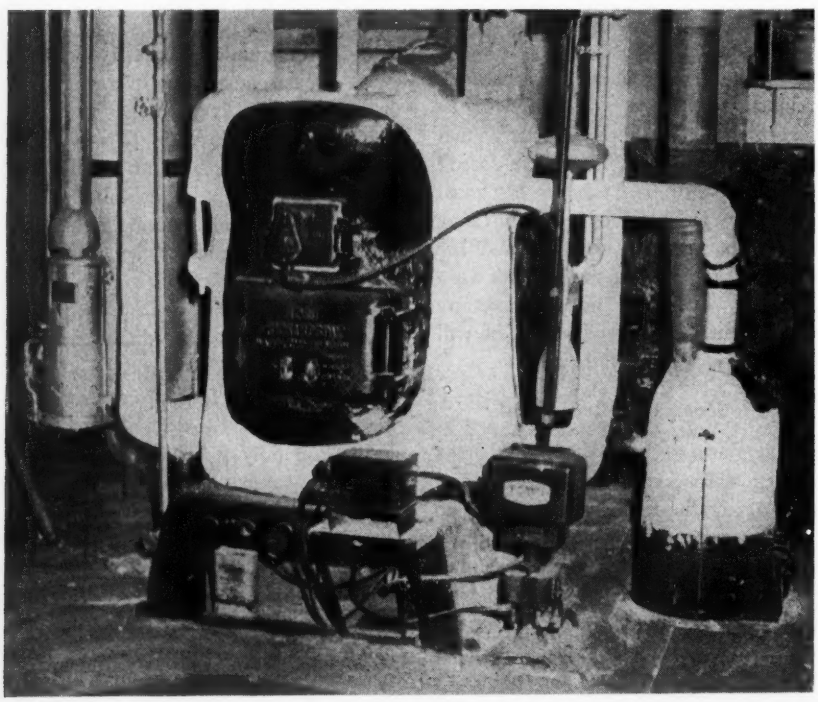
In that part of Northern New Jersey which is included in the Metropolitan New York area, live Mr. & Mrs. C. E. Bennett. They have a brick veneer and stucco house fitted with storm windows and doors. Heat normally is supplied by a Toridheet rotary burner in a round boiler. The gravity hot water system warms 1700 square feet of floor area, and more than 600 sq. ft. of hot water radiation.

During the winter of 1941-42 the Bennetts burned 1640 gallons of oil. Faced with a rationing cut, there was little they could do to the house or the burner to save oil. Since they are no longer young, it was considered impractical to carry considerably lower thermostat settings, and because they are becoming no younger with each passing winter, it is not feasible for them to shovel coal or wrestle ash cans.

In spite of its undesirable features, Mr. Bennett investigated conversion. Available stokers required as much coal and ash handling as handfiring, and cost considerably more than grates. But grates were no bargain. Mr. Bennett found that grates and parts would cost $65.00, and labor to remove the burner and install the grates would cost $75.00. Then there would have to be a coal bin which would cost $20.00 more, or a total of $160.00. But since he would want to burn oil in the post-war years, Mr. Bennett also allowed $250.00 for a new burner installation as soon as he would again be allowed to have it. This brought the total to $410.00 for the entire round trip from oil to coal to oil. Mr. Bennett believed there was a better and more economical way to save oil for the duration.

At a total cost of $57.00, Mr. Bennett bought and installed a coalfired bucket-a-day water heater and tied it into the oilfired boiler. The heater, a Glo-Clo No. 153, with a capacity of 125 gallons per hour, cost $24.00. Materials and labor to install it cost $33.00. This is a total of $57.00, and the oilburner is intact, contrasted with more than $400.00 that conversion and reinstallation would have cost.

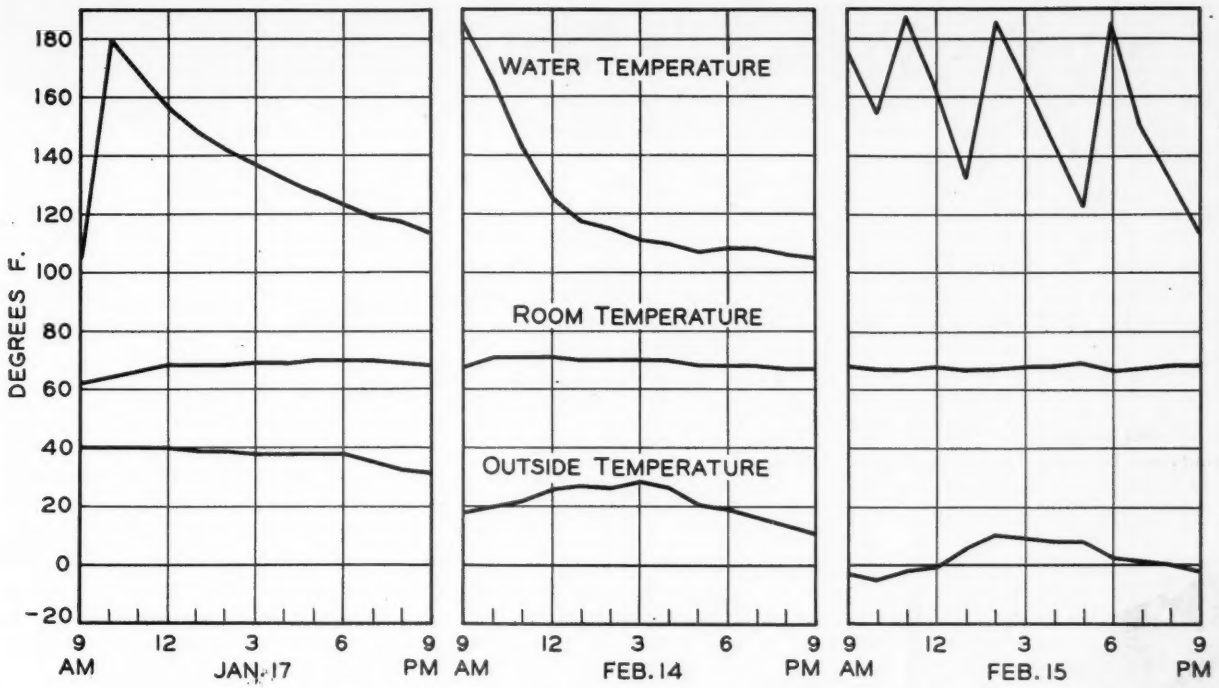
The Bennett Home



Coalfired water heater installed as a booster for the oilfired domestic heating system.

The water heater was connected with about five feet of 1½-in. pipe and fittings to the heating boiler. Water supply for the water heater was piped off a tee in the return line where it entered the boiler, straight to the base of the water heater. The hot water line from the top of the heater was piped to a connection about two-thirds of the way up the side of the boiler. By keeping the coalfired water heater operating, a constant flow of hot water is delivered to the boiler and the heating system, whether the burner is operating or not.

"This water heater, fired three times a day, will maintain the water in the heating system at about 105° on the average winter day," says Mr. Bennett. "This is heat enough to keep the thermostat satisfied on mild days, and all night on most nights. The base load is being carried all the time by the coalfired water heater, and the oilburner is called upon only to



Temperature records for three typical days this winter, showing the effect of the coal-fired water heater on oilburner operation. Peaks in the boiler water temperature curve indicate the number of times the burner operated.

boost the water temperature slightly when the outside temperature drops.

"I have noticed that moderate firing of the water heater will maintain the indoor temperature about 30° above the temperature outdoors. On Sundays and other days when I am at home, I can maintain house temperatures 40° above outside readings by firing the water heater about five times a day," Mr. Bennett explains.

Handfiring the water heater with coal involves relatively small amounts of coal and ashes to be handled at any one time, and is not as difficult for these people to handle as the larger amounts necessary to keep a coalfired boiler operating at a sufficiently high firing rate to carry the load.

There was all possible work done on the house to conserve heat before the season started. Additional storm windows were installed. One roof over a sun porch was insulated, and two radiators, representing about 20% of the connected radiation, were cut off this winter. For these reasons it is not possible to make an accurate comparison of operating costs with the water heater carrying the base load, but actual fuel consumption figures for January are available.

On the basis of the smaller heating load on the boiler, the improvements to the house, and lower night temperatures that are being maintained this year the Bennetts burned 90 gallons of oil and one-half ton of coal in January. The month in New York City had 1058 degree-days this year. Based on the former consumption of 1640 gallons for 4701 degree-days last year, the oil consumption for January would have been 370 gallons.

Curves in the accompanying graph show the operation of the heating plant with the water heater carrying the base load. Temperature readings outdoors, in the living room, and of the water in the boiler were made hourly for each of the three days shown. January 17 was a relatively mild, fair day, and the burner operated only once during the day. Additional readings, not plotted for the night that followed, reveal that the burner did not operate at all until the thermostat was turned up from 60° to its daytime setting the next morning, though the temperature remained at about 32° outside during the night. Boiler water temperature during the night fell to about 90°, since the water heater was not fired until morning.

February 14 was a colder day, and outdoor temperatures fell constantly after 3 p.m. The burner operated only when the thermostat setting was raised in the morning, as shown on the second set of curves. By 11 p.m. that night the temperature outdoors had fallen to 5°, and the burner ran to raise water temperature to 170°.

The next day was the coldest February 15 since 1916 in New York, with an official mean temperature of —1°, accompanied by a high wind. During the twelve hours shown in the set of curves on the right the burner operated only three times. The burner had operated at about 7 a.m., and again at 11 p.m., neither of which are shown.

There can be no doubt that the use of a coalfired water heater to maintain water temperatures in the heating system will save oil. The expenditure in money, materials and skilled manpower is small when compared with a complete conversion to coal. Further, it removes the necessity of removing the oilburner, an objection to conversion that has blocked oil-saving since the subject was first discussed.

This system, on which it is understood a patent application has been filed, also could be used with steam plants. The water heater might carry some of the actual heating load on systems with a reasonably good vacuum, and would keep boiler water in other steam systems close to the steaming point.

Kerosene Drum Bulk Plant

WHEN IT WAS DETERMINED by the Kerosene Committee of District 1 that considerable quantities of the product could be shipped in drums in box cars, the White Fuel Corp., Boston, set about building an emergency drum bulk plant.

The Kerosene Committee consists of W. Alton Jones, J. W. Carnes and John A. Brown. The president and active operator of White Fuel Corp. is Joseph F. White.

December and January cold snaps had found range burner and space heater users in New England industrial cities unable to get kerosene; the demand was much greater than PAW committees had forecast. People stood in long lines in the tenement districts to get a can or bucket filled from a curb pump or a parked tank truck.

With hundreds of box cars of drum kerosene pouring into the Northeast in recent weeks, the situation is easier, suffering has substantially disappeared.

To handle 20 carloads a day, the bulk station shown in the accompanying photographs was built, almost overnight, by White.

Because of the urgency of getting the plant erected, including platform, vats, piping system, pumps and lighting equipment, its cost was about three times what it would have been had there been plenty of time to do the work in union eight-hour shifts. The last grating was being fitted over the troughs as the first string of cars was shunted onto the siding.

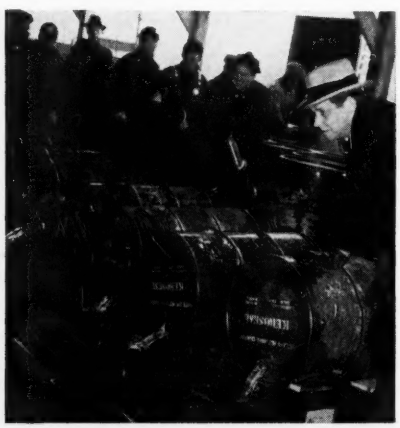
Excessive operating cost also applies to the labor of unloading drums, because of the 24-hour seven-days-a-week continuity. Handling costs about double what it would under normal efficient functioning, and the larger the daily volume, the higher the per-gallon cost.

On the first day of the plant's operation, Boston temperature stood at zero; 30,000 families received kerosene on that day because the White plant had been rushed to completion.

Two additional drum unloading plants have subsequently been erected in the near vicinity, with the result that large strings of cars can be brought to the area with minimum switching problems.

Empty drums are immediately loaded for return to Texas. Only two-thirds as many cars are needed to take them back, for empty drums are stacked to the car's roof, while there are only two tiers when loaded.

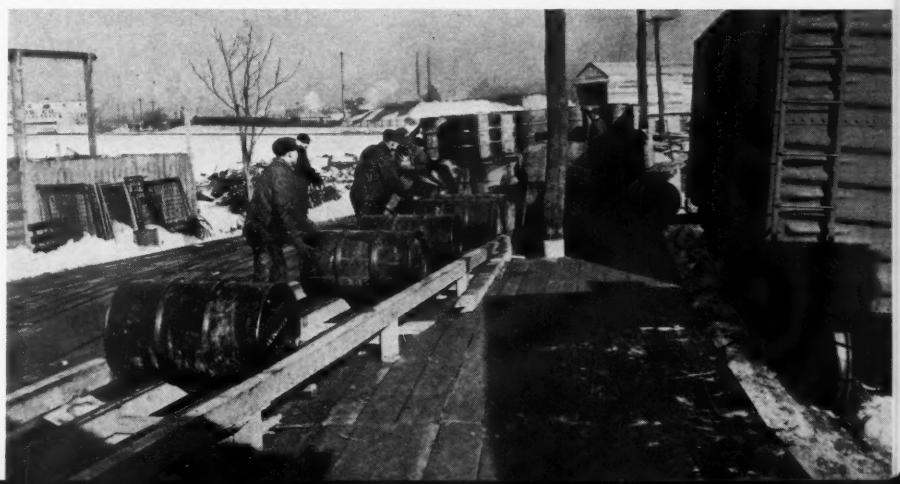
Some New England distributors have been able to handle drum kerosene in relatively small quantities without a special plant by pumping out the drums by means of a hose, while they are still in the car. They first empty the upper tier, remove the empty drums and pump out the lower tier.



Associated with White in building the bulk plant pictured here were Henry Brask, company engineer, who designed the plant's major features, and William

Warnock, the company's operating manager, who actively supervised construction work.

If the box car movement of kerosene in drums is going to have to be continued for any length of time, White plans to rebuild the main section of the plant to reduce fire hazard, with concrete floors, steel partitions and ventilating blowers.



PHOTOGRAPHS

Upper Left. *Unloading drums at the receiving end of the plant.*

Center Left. *Boston's Mayor Maurice J. Tobin is on hand to welcome the first shipment, well aware of the relief this will bring to thousands.*

Lower Left. *Drums are up-ended for final draining. Kerosene falls through the grille into a receiving basin, then by gravity to underground storage.*

Upper Right. *Petroleum distribution "a-la-cart." Hundreds of such lines formed in New England's tenement districts, and the weather wasn't always this sunny.*

Center Right. *The out-loading side of the plant.*

Lower Right. *Empties roll down a two-rail track to be reloaded for Texas.*

Block That Loss

Most Domestic Installations Are Being Overfired

By
O. F. Campbell

Overfiring domestic oil installations has been common in the past as insurance against customer complaints. Now that fuel economy is more important than quick pick-up, it will save oil to reduce the firing rate. Mr. Campbell of Sinclair Refining Company sums up here the findings of the company's East Chicago laboratory.

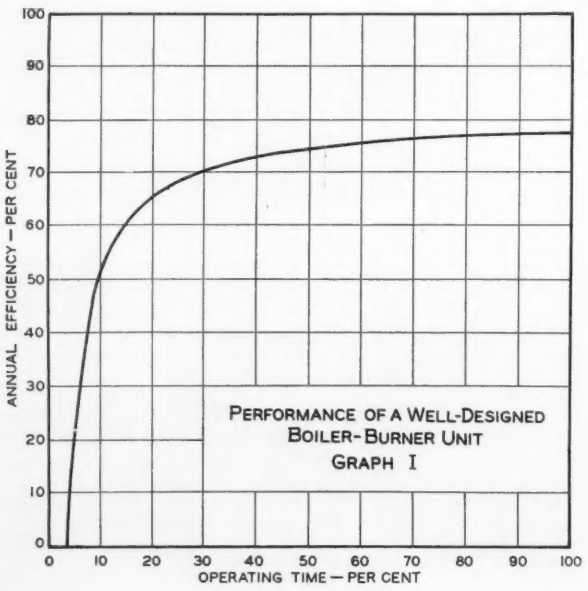
FUEL OIL rationing has forcefully brought to the attention of the home owner the problem of conserving domestic fuel oil. In the past the home owner has demanded that the domestic heating plant be so designed that it will quickly heat up the home in the morning, be almost instantaneously responsive to every change in the weather, adequately heat the home on the coldest day of the coldest year, little or no attention required, little or no maintenance, and an efficient oil burning system when it is operating. Due to the low cost of an abundant supply of domestic fuel oil the cost of domestic oil heating has not been important.

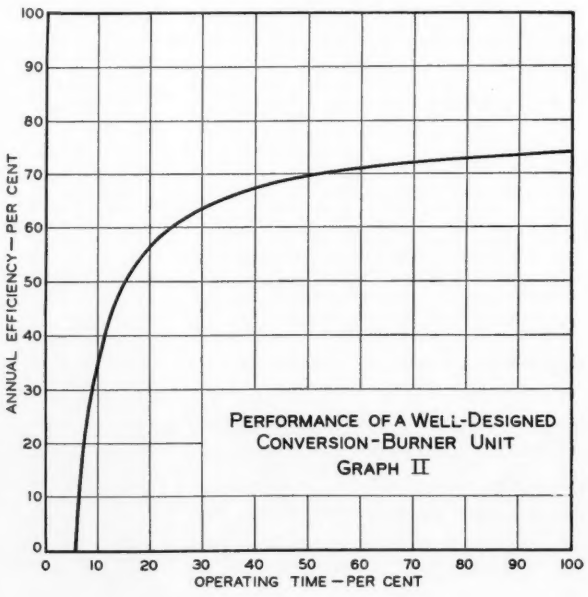
The vendors of domestic oil burning equipment have given the public what they demanded. Many different makes of oil burning equipment and many distributors were a natural development in the rapid progress of domestic oil heating. To be certain that no trouble would be encountered on the coldest day of the coldest year many a domestic installation has an over-sized heating plant. Many a distributor of oil burners for conversion installations or boiler-burner units was unqualified to properly size the heating system for the home. Some oil burners were selected from catalogs from mail order institutions and installed by local handymen or home owners unqualified to select the proper size. Likewise some second-hand burners have been improperly installed and have not been properly sized.

The natural results of the demands of the home owners and the desire of dealers and distributors to provide a trouble-free installation were that many homes have improperly sized domestic heating plants. The majority of homes equipped for oil burning have heating plants that are too large.

The Sinclair Refining Company being aware of the existing domestic oil heating conditions installed a research fuel oil laboratory to enable the production of a fuel oil that would most adequately serve the domestic oil heating demands. The laboratory was also equipped that a similar study could be made of apartment building and small industrial plant heating so that the proper heavier fuel oils could be selected to most adequately serve these institutions.

One of the many items investigated was the proper sizing of a domestic heating system in order to explain, at least in part, why two almost identical homes with different sized heating plants had such a wide difference in fuel oil requirements. A standard boiler-burner unit and a conversion burner installed in a conventional domestic boiler were used for test purposes. Each unit tested was a steam boiler and the steam output was actually determined by condensing and weighing the steam produced. An electric timing device was used to accurately control the per cent operating time. The results of this investigation are graphically reported in Graphs I and II. Graph I shows the performance of a well designed boiler-burner unit and Graph II shows the performance of a well designed conver-





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fueloil & oil heat

sion burner unit. A boiler-burner unit is one that is designed to burn fuel oil only whereas a conversion unit is one that the boiler may be used to burn other fuels than fuel oil but is equipped with an oil burner.

Graphs I and II show that the burner must operate a small per cent of the time to overcome losses that occur when the burner is not operating. These losses consist of the radiation loss of the boiler, heat lost up the chimney due to cold air passing through the boiler and unburned fuel losses when starting up or shutting down. For a well designed boiler-burner unit these losses are overcome by operating the burner for about three per cent of the time or about 1.8 minutes out of each hour. The conversion burner unit required about twice as much fuel to overcome these losses due to the less efficient installation. For discussion purposes it is assumed that the radiation loss of the boiler has but little effect in heating the modern home.

More Operating Time

The conclusion reached by these tests is that a properly sized fuel oil burning unit is the most overall efficient unit. The practical application of the facts brought out in the tests is to reduce the fuel burning rate per hour of existing installations to increase the per cent of operating time. For a gun type burner it is only necessary to install a smaller nozzle and subsequently readjust for the proper air-fuel ratio. For other types of burners the fuel burning rates are usually adjustable without changing any part of the burner and the equipment is so designed that the air-fuel ratio can be readjusted after reducing the fuel burning rate.

If a domestic heating plant is too large so that it operates only 12 minutes out of each hour for the coldest day of the coldest year the per cent operating time will be 20. During the 20 per cent operating time the efficiency will be high but during the remainder of the hour (80 per cent) the furnace will be cooled off by the cold air passing through the furnace. If the fuel burning rate is reduced and the air-fuel ratio readjusted to the proper ratio the burner will operate more efficiently during the period in which it operates and will also operate a greater per cent of the time with the net result that less fuel will be consumed for the same amount of heat delivered to the heating system.

With fuel oil rationing and the lower temperatures maintained in homes the per cent operating time becomes less and as a result a greater amount of heat is lost. In many homes it may be possible to heat the home as well with fuel oil rationing as without fuel oil rationing if the fuel burning rate is altered to compensate for the weather changes. It is fully realized that this cannot be done but it is reasonable to assume that the fuel burning rates can be reduced during the fall and spring months and make a substantial fuel saving. Furthermore, it is reasonable to assume that a smaller oil burner nozzle or a reduced fuel burning rate can be maintained for even the coldest months of the year. The basic principle of adjusting the fuel burning rate for the heating demand is not a new one and has been used by many heating engineers in the past and this information is offered for the benefit of those who desire to change fuel burning rates for seasonal heating demands in order to conserve domestic heating oil.

Since fuel oil rationing has become effective many home owners have insulated their homes, weatherstripped their windows and doors, installed storm windows and storm doors, etc. which has in effect made their oil burning installations oversize and their per cent operating time has been materially reduced and it is suggested that these installations be carefully checked over and changes be made in the fuel burning rate so that the system will operate more efficiently.

It must be borne in mind that changes in fuel burning rates should be done by capable engineers and not by unqualified individuals. In many cases the fuel burning rates can be reduced to the point that the combustion chamber then becomes too large and should be reduced in size. If such is the case it is recommended that the combustion chamber be lined with insulating brick in order to more quickly bring up the furnace temperature, thereby providing better combustion conditions and less furnace radiation loss. It is felt that this information obtained from well designed units can be applied more effectively to oversized installations as well as to apartments, hotels and office buildings.

Conversion to Coal Campaign Gaining Speed

PULL DOWN YOUR HAT, button your coat, and hang on tight. The Convert-to-Coal merry-go-round is gaining speed every day, and promises to whirl the public and the industry dizzy before the end of the summer. Most commercial and industrial installations now are being ordered to convert, and the pressure is on to get an order through the various Washington bureaus by which domestic installations can be forced to convert. At present there is too much opposition to such an order, but the pressure of the campaign is only beginning to be felt. To what lengths fanatics will go before the summer is over can only be guessed, but there are some straws in the wind.

Officials at WPB's Plumbing & Heating Division recognize that the public will not willfully give up their oilburners on the evidence yet presented. There is no indication at present that facts will be presented to substantiate the claim that wholesale domestic conversions are necessary, other than the unsupported statement that the oil shortage will continue. But there is as much evidence to indicate there will be more oil next winter, as there is to indicate a further shortage. In the face of this evidence, frantic and unreasonable efforts are being made to trump up evidence to support conversions.

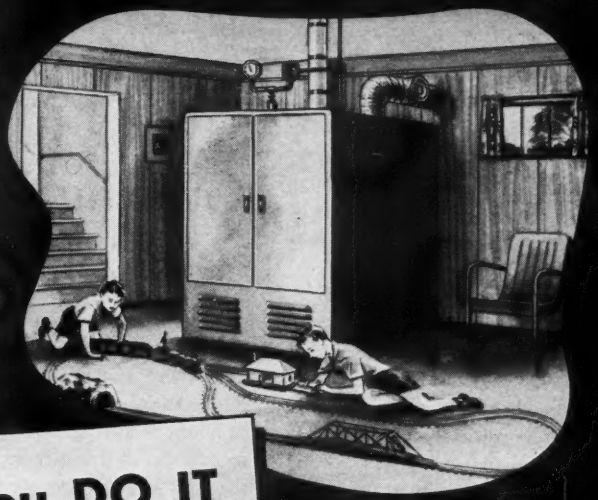
PAW Deputy Administrator Ralph K. Davies seized the occasion of the announcement of 1942 discovery of reserves to point with alarm. Mr. Davies highlighted the fact in his press release that only 1% of the newly discovered reserves last year were in Indiana, Ohio, Kentucky, West Virginia, Pennsylvania and New York, and only 1½% in Michigan. It would be pertinent to ask, "So what?" Mr. Davies was reporting on reserves—crude supplies in the ground for the long pull—not oil for immediate refining and use. Most of our crude oil reserves are in the southwestern states, and it is reasonable to suppose that most of the new discoveries will be there too. Significant is the fact that he took this announcement as an opportunity to further fog the eastern supply situation and try to prove

KEEP THE HOME FIRES BURN-ING

Thousands of "DL" Pressure Regulating Valves are in service on pressure burners throughout the country. All oil burner servicemen hold these pressure valves in high regard for the long trouble-free service they render.

However, like every other mechanical device, they do require occasional attention such as cleaning the needle and seat. Clean pressure valves provide a positive, snappy cut-off of the oil flow with no after-drip to form carbon, plug nozzles, and waste precious fuel.

Maybe you are a newcomer to the oil burner field. If so, you may want to know how to clean "DL" Pressure Regulating Valves.



Here's How you DO IT

1. Turn off burner switch, and shut off oil supply at tank.

2. Remove adjusting screw cap "A".

3. Turn the adjusting screw "B" IN until it comes to the stop. Count *the number of turns* between the original position and the stop. Then back out the adjusting screw all the way so as to relieve the pressure on the main spring.*

4. Remove nozzle cut-off assembly "E".

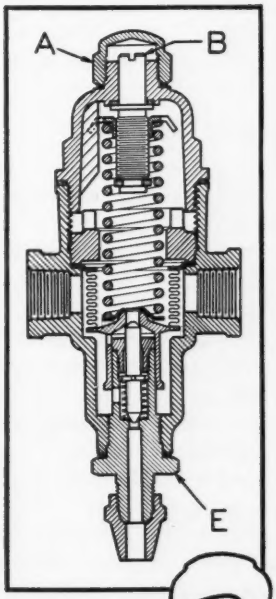
5. Take assembly "E" apart carefully and clean in kerosene, gasoline, lacquer thinner, or suitable solvent. DO NOT USE ANY METALLIC TOOLS TO CLEAN NEEDLE OR SEAT. Use a match stick or a toothpick to avoid damaging the highly polished and accurately ground surfaces.

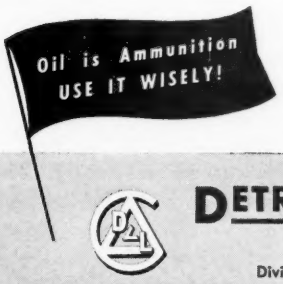
6. Reassemble assembly "E" and replace in valve.

7. Turn the adjusting screw IN until it again comes to the stop. THEN back out the screw the *same number of turns which you originally* counted, which will bring the adjusting screw back to its original pressure setting.*

8. Replace cap.

*If you are using a pressure gauge to set the pressure, it is not necessary to turn the adjusting screw IN first. Merely back it out—and make your final setting with the gauge. We recommend using a pressure gauge whenever possible.





DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

Division of AMERICAN Radiator and "Standard" Sanitary Corporation

Canadian Representatives—Railway and Engineering Specialties Limited, Montreal, Toronto, Winnipeg

that oil is scarce in the East. He neglected to say that there is oil in proven reserves for 13 years at the present rate of use, if we never find another drop of new reserves. Surely PAW does not believe the war will continue, or that the transportation shortage will be critical for 13 years more. It is obvious that Mr. Davies is injecting this statement in his release only to add pressure to the conversion campaign, logic notwithstanding.

This campaign of scare announcements and pressure for conversions to coal is permeating the entire PAW organization. Field personnel are spreading doleful predictions of oil shortages, though they cannot support these stories with anything concrete. Even former members of the oilheating industry now working for PAW are bearish on the future of oilburning, without being able to tell you exactly why. It is simply in the air around PAW offices.

It may be coincidence, of course, that Mr. Ickes is Coordinator of Solid Fuels as well as Petroleum Administrator for War. Bituminous union miners' contracts are coming up for renewal in March. Anthracite contracts are due for renewal in April, and mine union officials are interested in maintaining coal markets. Mr. Ickes is charged with supplying coal as well as oil, and his influence may be needed to come to a final settlement in the battle for new union contracts.

Propose Victory Stoker

Those interested in coal and stoker production and sales are increasing pressure at an alarming rate. Though a recent plan to build "Victory" model domestic stokers "to stimulate the residential conversion program" has fallen down for the time being, it is well to keep in mind that this scheme still has considerable support. Oilburner men are questioning their own efforts to conserve critical materials by using existing stocks, while there is a possibility that stokers will be authorized for conversions, using four times as much critical material as each burner replaced.

Oilburner men have been troubled for some time by the apparent impossibility of getting support out of WPB's Plumbing and Heating Division for oil conservation devices. The division seems interested only in outright conversions. Conversion grates using the burner to supply air for coal combustion got no comfort from the division. More recently it is reported that the division has opposed a device for burning coal over the oil flame, though preliminary tests indicate that the device is capable of effecting substantial savings. Unless the burner is removed, the Plumbing & Heating Division seems to oppose all efforts to save oil.

Members of the Division also are actively campaigning for all possible oilburner conversions. Reports of a recent meeting at Minneapolis indicated that residential installations in that area might be forced to convert. Apparently, no such statement was made at the meeting, but the sentiment was so strongly in that direction that the reporter wrote of plans to convert 100,000 domestic installations in that area before next fall. Such a scheme has not yet been forced on the Middle West.

Now that oilburner manufacturers have their plants converted to war work and running more or less smoothly, there should be time for more attention to the way their industry is faring under "emergency" conditions.

Cutting Heating Hours Best Conservation for Apartments

INVESTIGATION of ways and means of conserving fueloil in apartment houses has revealed that reduction in the number of hours of heating, combined with a moderate drop in living room temperature is the most satisfactory way to save, according to OPA's Fuel Oil Industry Letter No. 3. Last November a private study was undertaken for the management of Hillside Homes, Bronx, to find the most satisfactory way to cut fuel consumption a third.

Three possible ways of saving oil were tried:

A. Reducing indoor air temperature with no reduction in hours of heating.

B. Reducing hours of heating with no reduction in temperatures during heating periods.

C. Reducing the amount of heated space with no reductions in either room temperature or hours of heating.

Reducing room temperatures was found impractical due to the operating features of the heating system. On mild days, when rates of steam flow were low, steam condensed in the radiators nearest the boiler, giving insufficient steam to heat more distant apartments.

When the method of reducing space was tried, not all residents cooperated. Residents were asked for permission to turn off steam valves, remove handles, and seal radiators in all bedrooms except one in each apartment. Originally 80% of the residents in one unit granted this permission. Within a few days, the coldest weather of the test period occurred, and the residents began breaking the seals and turning on the radiators in the unheated bedrooms. At the end of 10 days only 58% of the residents still had radiators shut off in the bedrooms.

Elimination of these two methods left as the only possibility the plan of reducing hours of heating. In previous years, the management had furnished heat from 6 a.m. to 10 p.m. daily, or 16 hours a day. Theoretically, operating the boilers only two-thirds as many hours a day would save about one-third the fuel. Practically, however, the only feasible time to shut off the heating system is during the middle, or the warmest, part of the day. Operating the burners from 7 to 11 each morning and from 3 to 10 each afternoon and evening reduces hours of heating from 16 to 11 a day, roughly one-third, but it does not save an equal amount of fuel because the heaviest heating loads are in the morning and evening. Nevertheless it was decided to adopt these two daily heating periods and then to burn, during each day, only two-thirds as much oil as would normally be burned, based on past degree-day consumption records. The effect of this operating procedure on indoor temperatures was studied by taking temperature readings three times each day in selected apartments.

The average of over 4,000 readings of daytime temperature of the indoor air at the 60" level in the living room of 49 apartments was 66.7°F. The saving in fuel oil was 42%, with some residents using auxiliary sources of heat.

It should not be concluded that an average temperature of 66.7°F. was maintained at all hours in all apartments, or

There's a Great Day Coming!

...NEW MILLIONS OF SKILLED WORKERS HOLD THE KEY TO TOMORROW'S FINER HOME EQUIPMENT

No other people have ever been so mechanically minded as we Americans. That is why millions of new workers have so quickly acquired the skill needed to produce quantities of complicated and extremely accurate weapons of war. Even at Delco Appliance, long noted for high-precision manufacturing and for an unusually high percentage of trained employees, more and more people have been trained to do precision work.

Today this army of skilled men and women works only for Victory. But once peace has arrived, and America can again build for mankind's betterment instead of its destruction, these skilled workers will help unlock the door to tomorrow's better living.

And when this "great day" comes, we at Delco Appliance will lose no time in bringing you the new and finer home equipment that our increased "know how" makes possible . . . so that you, in turn, will lose no time in supplying the thousands of home owners eagerly awaiting it.

Delco Appliances include Automatic Delco-Heat (oil-coal-gas), Delco Water Systems, Delco-Light Power Plants and Delco-Light Ironclad Batteries.

DELCO APPLIANCE

ROCHESTER, N. Y.

DIVISION of GENERAL MOTORS

Fueloil & oil heat

that this temperature could be maintained without the use of auxiliary sources of heat, such as gas and electricity. In one apartment with average exposure and located close to the boiler, selected as an illustration because observers found auxiliary heat being used only 6 times during 60 visits, the average temperature for all hours of the test period at the 60" level in the living room obtained with a recording thermometer, was 63.9°F.

The survey disclosed that less than two-thirds of the normal consumption of oil must be burned in mild weather in order to maintain average daytime temperatures over 60°F. in the cold months of January (normal mean temperature 31.3°F.) and February (normal mean temperature 31.2°F.) without supplementing the oil ration with auxiliary sources of heat.

Average indoor temperatures during the test period varied according to apartment location and exposure factors. Apartments which were relatively close to boilers and which were favorably situated with regard to sunshine and which had relatively small exposed wall areas recorded average indoor temperatures of nearly 70°F. Those at the other extremes averaged about 64°F.

Rationing Division Officials Planning Next Year's Program

THE MONTHS OF MARCH and April have been earmarked by officials of the Fuel Rationing Division as the period in which to explore and decide upon possible changes to the fueloil rationing program for next season. With the exception of some time and effort always having to be devoted to meeting emergency situations, full time of the principal Division men is allocated for the period to the new studies.

Some useful suggestions have come in that might have been incorporated into this year's working, but several top-flight oil men have urgently requested that no important change be made before summer, because they don't want to have to revamp their practices now.

Fuel Rationing Director Dean and Fueloil Rationing Chief Neukom have been inviting the industry, far and wide, to submit their ideas on changes to simplify the procedure, if possible while maintaining the necessary degree of control over supply, and further preserving the necessary flexibility to meet unforeseen weather and supply difficulties. Such plans are not easy to think up . . . if you doubt this, try it.

Quite a number of suggestions have come in, some decidedly good, others excellent in one particular phase, but having features that would be very difficult to handle in other phases.

The new suggestions are being studied first by men in the Division, then some of them are mimeographed and sent out to leading fueloil distributors for their criticisms. The Division's permanent advisory staff of heating engineers spends considerable time checking them from the standpoint of heating workability. The Division's Industry Advisory Committee, consisting of eleven fueloil and heating men will spend March 16 and 17, and such additional time as necessary, studying the new ideas and submitting their opinions of them.

One fairly important change is reasonably sure to be made; while not officially stated, or even definitely decided, it is fairly certain that the present type of stick-on coupon will not be used next year, and that ration banking will be used for fueloil.

Present thinking is that some form of coupon or ticket will be used to designate gallonages rationed; that the truck driver will pick these up, seal them in an envelope, mark on the outside the name of customer and number of gallons represented.

The fueloil distributor would not open the envelopes, but would simply tally the amounts marked on a stack of envelopes, then deposit the envelopes at his local bank. The bank clerks would do the necessary counting, and credit the distributor the correct number of gallons in his ration account. Then when the distributor bought fueloil from his supplier he would write a check against his ration balance in the bank, in gallons, the same as he would write a bank check in dollars.

Ration banking is now used for gasoline, sugar and some other commodities. Its principal function is to shift the burden of a lot of tedious handling of coupons and clerical work from the dealer or distributor to the bank . . . bank clerks are accustomed to such work, and the Government pays the bank for doing it.

Urging simplification of the fueloil rationing plan for the future, a committee of U. S. Senators, headed by Sen. Francis Maloney, recommended that serious consideration be given to a straight-line percentage cut, based on 1941-42 consumption. The pros and cons of this have been set forth many times, and its impracticability fairly well known, but every investigation pops this out as a new idea.

The Committee also attacked the rationing of kerosene and range oil on the grounds that these are used primarily by poor people who are not addicted to waste and who have not the funds to insulate their homes, with the conclusion that these should not be rationed at all.

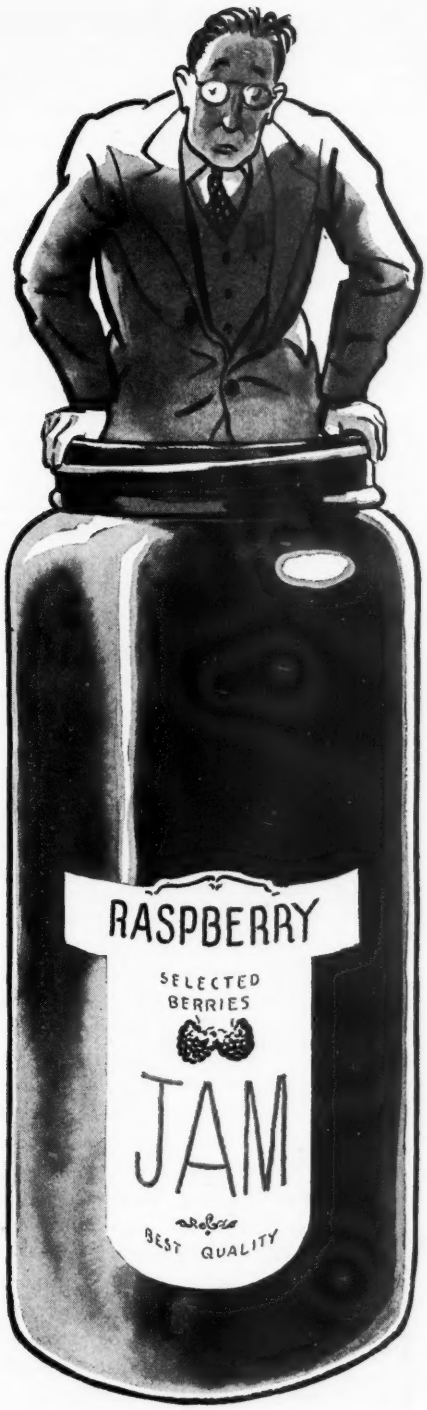
This overlooks the fact that these products can be used in central heating plants as well as No. 2 or 3 oils, and that if they were not rationed it would be a simple matter for anyone with a central heating plant to make a trip to the store each day with a five-gallon can, bring it home and pour it into his 275 gallon tank for the boiler or furnace.

If such products were not rationed, this would not be illegal, yet total heating oil demand could go back up to peacetime levels.

Distress Amendment

There is a possibility that, before this issue reaches readers, there will be an amendment to the Ration Order 11 permitting supplemental rations to be given in period 5 to hardship cases where, through no fault of their own, users have been unable to make out on their rations. The exact form of the amendment is not known—it's a difficult thing to compose, because it isn't intended to simply open the door to everyone, so the cases must be clearly defined to avoid discrimination.

Many people have not rationed themselves tightly enough, as long as they had a fair amount of oil in their tanks. The inventory "cushion" at the start of the season contributed to this. If the oil in tanks at the start of the season had been deducted from the first period coupons, people would have quickly known how they were fitting their consumption to the



Make the man in a jam your customer

THIS is Mr. C. W. of Seattle, Wash., as he probably felt when his furnace suddenly needed repairing. Know what he did?

Just as many a "man in a jam" does, he looked in the Classified section of the Telephone Directory. He was attracted to the advertisement of the Home Heating Company because they repaired and had parts for all furnaces. He gave them the job.

Would you like to get your share of business from Classified customers in your neighborhood? Then call the business office of your telephone company and ask for the Directory Advertising Representative. He knows what people look for in the Directory and can help you plan a most effective message.

ration. That is one of the problems to consider seriously for next season, whether or not to have a "cushion."

Several additional amendments to Ration Order 11 have been issued since our February issue, which included those through No. 33. In that issue No. 32 was erroneously reported as applying to Washington-Oregon extension of rationing. The correct No. 32, then 34 and subsequent amendments follow in brief:

Amendment 32. Requires commercial, industrial or governmental consumers (if not in Schedule A of PAW Order No. 3), and who use more than 9,000 gallons quarterly for purposes other than heating or hot water, to surrender their coupon sheets or other evidences of ration to local boards so that they may effect the 40% cut decreed in Amendment 29. Also states that no consumer may use more fueloil than the amount of his ration, even though he may have a larger amount in his tank.

Amendment 34. Stretches the valid period for Coupon 4: In Zone A from Feb. 2 to April 17; in Zone B from Jan. 31 to April 12; in Zone C from Jan. 27 to April 6; and in Zone D from Jan. 30 to April 6.

Amendment 35. Gives oil dealers 30 days from the validity expiration date of coupons to turn them in for inventory coupons.

Amendment 36. Provides for a 25% rationing cut in fueloil in Oregon and Washington, effective February 1.

Amendment 37. Establishes dates and a means of certifying to customers' past oil consumption in "Area A" (Pacific Coast rationed area).

Amendment 38. Refuses fueloil rations to pleasure boats used for non-essential purposes.

Amendment 4 to Supplement 1. Cuts No. 4 coupons to a value of 8 gallons for Class 1 and 80 gallons for Class 2 in Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, and New York south of the Adirondack area. In other eastern states coupon values remain at 9 and 90 gallons. Middle Western states in Zone B are allowed 11 and 110 gallons for Class 1 and Class 2 coupons.

Now Is The Time To STRENGTHEN Ourselves!

On the Nation's War Front, ELECTROL is contributing to a growing military strength by producing vital parts for necessary weapons of offense. Our work in licking tough technical jobs requiring minutely precise machine work is unbeaten anywhere in the country.

This is also a good time for dealers to think a little, between their jobs of service to the Homefront, about making themselves stronger—stronger in merchandising and servicing ability, and stronger in the products they will sell in the great post-war era.

ELECTROL is devoting the time that can be spared from intense war-work, to post-war planning and experimentation. We'll be ready to keep ELECTROL Dealers out in front, as usual.

FOR VICTORY!

ELECTROL

25 Howe Ave.

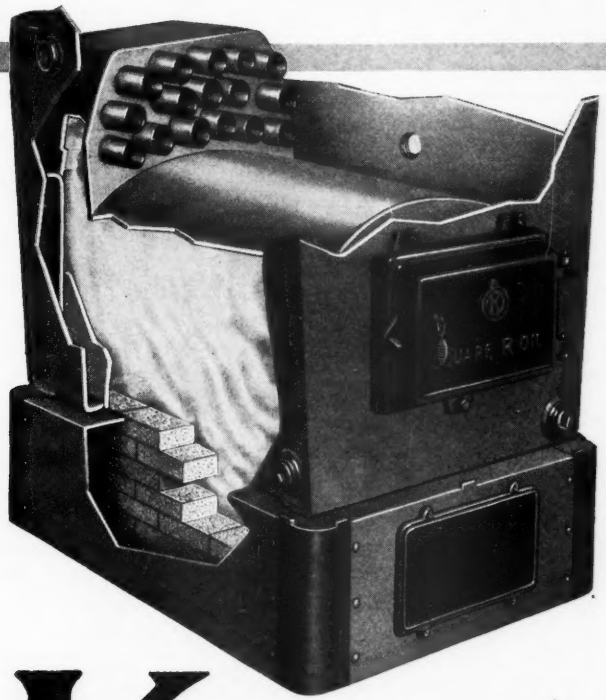
PASSAIC, N. J.

New Yorkers Hear Talk on Oil Crisis

SIXTY MEMBERS and guests attended the regular monthly meeting of the New York Oil Heating Association at the Hotel Pennsylvania, February 8. Harry Evans, president, presided and reported on the negotiations and workings of the various committees in relation to the fueloil shortage and rationing in New York City. Speaker of the evening was A. B. Wolle, of the local office of the PAW, who discussed the fueloil situation, present and future, described the procedures followed by various Government agencies in the rationing and conversion campaigns, and answered questions by members. Dan Bierman, chairman of the entertainment committee, announced that a dinner dance would be held in the near future.

Ed Bruns, of the entertainment committee, announced membership applications from the following: Whitestar Petroleum Co., Rite Fuel Oil Co., Major Petroleum Corp., Filtered Fuel Oil Co., Arguis Fuel Corp., American Steam and Oil Heating Co., Fuel-O-Matic Corp., County Fuel Co., Acme Heat & Power Co., Stnaco Utilities Co., Spencer Fuel Corp., and Progressive Fuel Oil Co., Inc.

To Burn Fuel Economically a Big HIGH Firebox is Vital



No fuel can be burned efficiently in a restricted space. Plenty of room and height must be provided for the gases to swirl and mix with oxygen in order to complete combustion... otherwise much is unburned and wasted.

The cut-away view shows the generous size and extra high firebox of Kewanee's famous 83-R.

Yet this is only one of many features responsible for efficiencies of 80% and more in normal "on the job" operation.

KEWANEE
83-R STEEL BOILER

Burning fuel completely and economically is not enough . . . after that is accomplished the heat must be USED by transferring it to the water in the boiler.

Kewanee's famous **Two-Pass tubes** hold the gases in the boiler until all the usable heat has been absorbed by the water . . .

Waterways are unobstructed, hence heat from the blazing fuel is not merely picked up quickly but rapidly transported to the capacious steam space.

Another Important Fact: **Regardless of its type or size, any Kewanee Boiler can be quickly *converted* from oil to coal (stoker or hand-fired) and back again, without changes in the boiler.**

KEWANEE BOILER CORPORATION — KEWANEE, ILLINOIS

Division of AMERICAN Radiator and "Standard" Sanitary Corporation

Branches in 60 Cities
Eastern District Office: 40 West 40th Street, New York City

Fueloil & oil heat

Shall Oil Prices Be Raised To Stimulate New Discoveries?

ADVOCACY OF HIGHER PRICES for crude oil, with corresponding increases in refined products, has become widespread in producing circles in recent weeks. Need for the higher ceiling levels, says spokesmen, is to encourage prospecting ventures to discover additional oil reserves. The increase in crude most frequently urged is 25¢ a barrel, which would raise the present average crude value from about $1.15 to $1.40, or 22%, and constitute a new 15-year high point.

In a lengthy February 3 report, the Committee on Cost and Price Adjustment of the Petroleum Industry War Council set forth the thinking on the subject of oil producers, and substantiated generally that in the past the rate of new development has been closely identified with price. In each of the past four years, new reserves are said to have been less than annual consumption. The number of new wells drilled in 1942 was lower than in 15 out of the past 20 years. Still fewer wells were drilled in 1915, 1930, 1931, 1932 and 1933.

Price Relation

Charting the number of wells drilled in comparison to average crude oil price shows that these ran somewhat parallel, except in recent years—since the depression. Crude prices since 1934 have changed relatively little, but in that period new wells drilled have fluctuated between 12,000 and 22,000, the latter in 1937. Certainly, in the year of highest average crude price (1920 $2.80 a barrel) new drilling was stimulated, reaching an all-time high of 24,000 wells.

Unfortunately, some newspapers and periodical writers have used the data from the PIWC report in such way as to cause considerable apprehension in the public mind over the future outlook for petroleum supply. Some Government men have done the same. Actually, the report should have the reverse effect, for while it would be unfortunate to be using more oil than we are finding in new developments, yet the report shows that present known reserves in proven fields are equal to more than 13 years normal peacetime demand, even though not a single new field were discovered in that time. Wartime demand is lower than in peacetime, due to rationing; war needs are less than the amount rationing saves, or have been thus far.

Opposing the blanket price rise on crude is the Oil Price Section of the Office of Price Administration. If for no other reason, it is their function to resist everything inflationary until proven beyond doubt to be necessary. On the crude oil price question, however, they feel that there are a number of considerations not covered in reports that have come from industry spokesmen.

In the first place, they reason, the proposed method of stimulating new discovery is too indirect to be sure of success. If 25¢ a barrel is added to price ceilings, they see only one sure result . . . that a million dollars a day will be added to the public's oil bill, not on new discoveries, but on present proven production. They feel that on present production, with minor exceptions, existing prices are profitable, as reflected in company earning statements.

OPA is aware of the necessity of stimulating new discoveries, not so much for immediate war benefit as for our nation's long-range economy, but OPA wants to encourage new discovery in a more direct manner—by financial assistance if necessary. Some Price Section men feel that an important amount of wildcatting could be done for less than a million dollars a day, although they are not sure just how financial assistance should be arranged for this work, nor how to select the men or companies to do it.

Recent history of wildcatting shows that one well out of twelve or fourteen is successful, the others have to be written off. Most wildcatting has not been done by major oil companies, but rather by individuals or small companies that take a stab at it now and then. Thus it would rarely be possible to offset the losses on a dozen dry holes against one good producing well. Major oil companies might be interested in speculative prospecting with government underwriting, and then it could be possible to balance off part of the "dusters" against the gushers.

One proposed plan would place a high price, probably $2.00 a barrel, on all new development oil, with Government paying the difference between that and market for a year. That would allow wildcatters to operate independently and yet give them whatever incentive high price carries . . . bring them the incentive level of 1919.

Whatever the outcome of this interesting problem, oilheating as an industry would suffer another body blow if fueloil prices, particularly in the East, were raised again.

Is It Necessary To Enrich Manufactured Gas With Oil?

MID-FEBRUARY FOUND SUPPLIES of manufactured gas for cooking and heating in Eastern States critically short due to inability to get enough oil for its manufacture. In large space advertisements in newspapers gas utilities warned their customers to go easy, use as little gas as possible, forego warm baths for a few days and hold home temperatures at 65° or lower. Consolidated Edison in New York stated it had on hand only a four day supply of oil for enrichment uses, or 60,000 barrels, indicating that it uses in peak months 15,000 barrels a day.

Total quantities of oil used for enriching manufactured gas are between 15 and 20 million barrels a year. Both residuals and distillates can be used for the purpose, and at present large gas manufacturers are exploring the possibility of substituting low-octane gasoline.

Because oil has been incorporated into artificial gas production since the years when gas used used for illumination, it has been widely believed that its use is definitely essential, that gas made without oil would be unsatisfactory. However, in recent months this belief has come into serious question, and there is a growing conviction that cooking and heating gas made exclusively from coal is just as good a fuel for domestic purposes, and that the

Equipment for converting prospects

POWERFUL, ***free, dealer sales helps, plus Dust-Stops* national advertising, make customers out of prospects. This*** **FREE** ***sales-making material is ready to work for you—NOW! Order it today!***

1. Attractive newspaper ad mats:—They'll remind most every furnace owner in town that you are the Dust-Stop dealer.

2. Colorful mailing pieces:—Eye-catching sales messages to send out to all your prospects.

3. Reminder postcards:—Follow-ups for the mailing pieces. Imprinted with your name and address.

4. Radio scripts:—One-minute announcements, all ready to go on the air to boost your name and business.

5. Window and counter displays:—Attractive, strong-selling pieces that immediately identify your store as Dust-Stop headquarters.

6. Furnace labels: — They keep your name before your customers . . . put you first in line for any future furnace repair business.

Big-time national advertising, too

When you feature Dust-Stops, you tie-in with a national-magazine advertising campaign with a circulation of more than 33 million. This advertising appears in *The Saturday Evening Post, Life, Better Homes and Gardens,* and *American Home.*

Remember, old standards of wear and tear just don't go today. Your prospects realize that their heating equipment—especially oil-fired—must be kept in tip top shape to give maximum efficiency. And that's exactly where you fit into the picture with Dust-Stops. The 1943 Dust-Stop dealer-help campaign points all this repair, reconditioning and filter-replacement business right to your door.

So get in touch with your Dust-Stop distributor today. Tell him to show you "Pulling Profits out of the Air"—the Dust-Stop Sales Plan that is enabling hundreds of dealers to make money while rendering a real public service.

Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.

FIBERGLAS*

DUSTOP*

*T. M. Reg. U.S. Pat. Off.

AIR FILTERS

fueloil & oil heat

present huge oil consumption by gas companies could better be diverted to other channels.

Adherents to the no-oil-in-gas school of thinking point to the experience of the Rochester Gas and Electric Corp. of Rochester, N. Y. This company's experiences over a two-year period of cutting down oil consumption seem all on the plus side, measured in operating expediencies, customer satisfaction and cost ratios. They were described in a paper presented by R. E. Kruger, superintendent of the company's gas manufacturing department, at American Gas Association meetings during the past year. The paper was published in the October 1942 issue of "American Gas Association Monthly." The paper won the Beal Medal for outstanding contribution of the year.

Without entirely abandoning the use of enrichment oil, the company nonetheless cut its oil consumption from 506,000 gallons in the 1939-40 season to only 177,000 gallons in the 1940-41 season, while holding Btu content of the gas at about 540 in both seasons. The change was made without new capital requirements; existing equipment took the change in its stride. Virtually no oil would have been used in the second season but for the fact that in coldest months the company's coal-gas producing equipment alone could not meet the demand for gas footage.

From the gas companys' standpoint the principal objection to a straight coal gas operation has been that it produced a surplus of coke, not always marketable, whereas water gas made with oil consumed the coke made available by the other operation, providing a nice balance. When the oil-enriched gas is eliminated, customers have to be found for the unused coke, which ought not be difficult in wartime. From Mr. Kruger's studies it appears that for each 1,000 gallons of oil not used a customer must be found for eight tons of coke.

The subject of eliminating oil from gas manufacture came up at the time of World War I, was explored at length, but no action taken. At that time, however, the oil supply situation was not so critical; it was not being used for home heating and moreover that war was much less mechanized.

Probably the most significant disclosure from the Rochester studies was the fact that customers liked the new gas better. In the second season, when oil use had been cut by two-thirds, customer complaints were 20% less than formerly.

Conceivably in peace time, when no transportation difficulties exist, the mixture of coal and oil in gas is economically best for oil men as well as gas men, but in wartime every precious gallon of oil is vital to our fighting forces and to home oilheating and, in so far as practical, should be withheld from industries where a satisfactory substitute exists . . . and that substitute workable without purchasing additional equipment.

Illinois Legislative Committee Investigates Fueloil Rationing

IN A THREE-DAY HEARING at Hotel Blackstone, Chicago, Feb. 18-20, a special committee of Illinois state senators and representatives questioned dozens of witnesses to probe the need of fueloil rationing in the state and the rationing methods used.

At the close of the session the committee members returned to the capital to study the testimony and prepare it for presentation to the state legislature in March.

Chairman of the Committee was Sen. Earle B. Searcy, Republican. It was explained that this was a friendly study to bring out the facts, that the committee recognized that whatever its findings, it was hardly in position to indict the Federal Government.

Leader of the forces critical of Midwest rationing and its methods was Frank Spencer, president of the Burning Oil Distributors Assn., Chicago. His principal criticisms were that the present rationing program was developed to meet Eastern needs, that the Midwest was ignored in its development, that the plan is too complex and inequitable, that the local supply situation does not warrant such drastic curtailment to consumers. He brought in witnesses from other midwest cities to support his contentions and thus gave the hearing more of a Midwest flavor than simply an Illinois matter. Spencer's criticisms were constructive in ably bringing out the negative viewpoints.

Defense of the rationing system was headlined by Joel Dean, Director of the Fuel Rationing Division, Washington, whose testimony occupied most of the second afternoon. Dean explained at length the steps through which the plan was developed, with reasons why each phase was adopted. He did not insist that the present plan is universally equitable, but rather that with the help of oilheating industry men in its formation, it seemed the best practical procedure under the limitations of time and the enormity of the undertaking.

Dean invited from industry men suggestions for improvement next season, explaining that between now and summer all such would be carefully explored.

Also appearing for the Rationing Division were Ed Stegen, Regional Rationing Chief, Michael F. Mulcahy, Chicago OPA director.

Barney Majewski of the Deep Rock Oil Co., and member of the Petroleum Industry Committee for District 2 testified that oil rationing in the Midwest would be unnecessary if the Price Section of OPA would permit an increase of ½¢ a gallon in fueloil ceilings, making it economic for refiners to revise yield ratios to turn out more heating oils and less gasoline. He believes that present fueloil prices represent depression levels.

E. W. Miles of Indiana Standard reported that inventories of fueloil in the Chicago area are higher today than they were a year ago. Stegen of OPA credited this situation to the adequate controls in rationed supply. The surplus situation is not, however, universal throughout District 2.

Stegen and Mulcahy for OPA testified that with 949,090 fueloil rations issued for all purposes in Illinois, only 369 consumers had appealed to city, state or regional offices from decisions of local boards. Each time a local board denies an appeal for more oil, it is required to notify the applicant that he may appeal to the higher board.

On the final day of the hearing, Ernest L. Hughes, chief of the fueloil section of PAW District 2, and C. W. Johnson, director of marketing for that office, explained rationing necessity, but stated that a false ceiling put on the price of

We Helped You Through FAIR WEATHER We'll Help You Through STORM

You know, and we know, that the best way for us to maintain this industry in these trying days is through service to your customers . . . through the replacement of parts, fuel units and ignition transformers. Furthermore, you know, and we know, that your biggest source of revenue today is through service and the sale of replacement parts.

Webster Electric Company is fully aware of your problems. It backed you with advertising and sound merchandising schemes during the fair weather days before the war. It has been and intends to continue backing you through storm.

At the start of this emergency Webster Electric Company launched a policy of helping you provide your customers with the best possible service. Webster Electric was the only manufacturer that appealed to your customers through advertising urging them to make a service contract with you. Webster Electric has sent you charts, data sheets, and catalogs in order to help you with your service problems. Strategically located Webster Electric Authorized Service Stations stock complete inventories of replacement parts, fuel units and ignition transformers. It is to your advantage to make full use of the Service Station close to you.

By aiding you to the utmost now, Webster Electric believes it is helping you preserve your markets for brighter and more prosperous days to come. And when those days do come, Webster Electric Company, as always, will supply the best fuel units and ignition transformers that human ingenuity can build . . . will do everything in its power to make your sales effort more profitable.

WEBSTER ELECTRIC COMPANY, Racine, Wisconsin, U. S. A., Established 1909. Export Dept.: 100 Varick St., New York City. Cable Address: "ARLAB" New York City.

WEBSTER ELECTRIC SERVICE STATIONS AND SALES REPRESENTATIVES

Ignition Transformers, Fuel Units, and Parts

California, Los Angeles	Garland-Affolter Engr. Corporation	124 W. 4th Street	Sales Representative
California, San Francisco	Garland-Affolter Engr. Corporation	Rialto Building	Sales Representative
Connecticut, West Hartford	Bell Pump Service Company	100 Park Road	Service Station
Illinois, Chicago	Braun Bros. Heating Supply Company	3146 W. Chicago Avenue	Service Station
Illinois, Winnetka	Braun Bros. Heating Supply Company	812 Oak Street	Service Station
Iowa, Des Moines	Delavan Engineering Company	414—12th Street	Sales Representative
Maryland, Baltimore	R. E. Michel Company	1011 Greenmount Avenue	Service Station
Massachusetts, Cambridge	Cronin Supply Company	60 Broadway	Service Station
Massachusetts, Malden	E. L. Kimball Company	25 Lynde Street	Service Station
Massachusetts, Waltham	Cronin Supply Company	157 High Street	Service Station
Massachusetts, Wollaston	W. S. Plummer	109 Lincoln Avenue	Service Station
Michigan, Detroit	Wm. G. Boales Company	6429 Hamilton Avenue	Service Station
Minnesota, St. Paul	Thermal Company, Inc.	2448 University Avenue	Service Station
Missouri, St. Louis	Brass & Copper Sales Company	2817 Laclede Avenue	Service Station
New Jersey, Elizabeth	Certified Fuel Unit Service Company	600 Spring Street	Service Station
New York, Albany	Certified Fuel Unit Service Company	1018 Central Avenue	Service Station
New York, Brooklyn	Eveready Specialties Company	1724 Flatbush Avenue	Service Station
New York, Brooklyn	The Capson Company	106 Rogers Avenue	Service Station
New York, Jamaica	Sid Harvey, Incorporated	138-76 Queen Boulevard	Service Station
New York, Valley Stream	Sid Harvey, Incorporated	104 E. Mineola Avenue	Service Station
Oregon, Portland	Garland-Affolter Engr. Corporation	1233 N. W. 12th Avenue	Sales Representative
Pennsylvania, Philadelphia	Certified Fuel Unit Service Company	3412-14 W. Allegheny Ave.	Service Station
Rhode Island, Providence	Providence Plumbing Supply Company	47 Pine Street	Service Station
Washington, Seattle	Garland-Affolter Engr. Corporation	532 First Avenue South	Sales Representative

WEBSTER ELECTRIC

"Where Quality is a Responsibility and Fair Dealing an Obligation"

fuelail & oil heat

crude by OPA had retarded production.

The legislative hearing was useful in bringing into the open the facts and opinions on both sides of the controversy. However, nothing can be done about the conclusions, officially.

Not brought out in the hearing was the fact that District 1 consumers are in much worse shape than those of District 2, for they are struggling with 8 gallon coupons, against 11 gallons in the Chicago area. A legislative investigation by New York or some New England state was more to be expected.

However, it's an understandable human reaction to be annoyed over inconvenience caused by being deprived of a commodity that is traditionally plentiful in the area, as Californians would be annoyed if they had to eat less oranges, or Baltimore inhabitants less oysters.

There is, though, one basic difference. Rationing fueloil is designed to share, not the niceties or refinements of the epicure, but physical health, or its opposite.

The Midwest in many ways has shown itself more patriotic than the East. Voluntary enlistments in the armed forces were higher per capita; response to war bond drives is reported relatively higher; most war production is being centered in the area west of the Alleghenies.

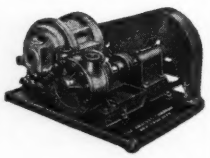
Perhaps the answer to wider Midwest criticism of rationing lies in their being remote from many of the daily visible effects of the war. Atlantic Coast inhabitants have seen numerous ships sunk in clear view of the beaches; they have a nightly dim-out, little short of a blackout; they have seen warships creeping into ports for repair, scarcely afloat; their hospitals have the bulk of the Atlantic and African casualty cases; the ban on pleasure driving is enforced; numberless patrol bombers and small water craft cruise the coastal areas constantly . . . Easterners feel more the daily impact of the war. This will not be so when casualty lists begin to mount; then there will be little geographic variation in attitude.

Eastern dissatisfaction with fueloil rationing, as measured by those consumers who asked local boards for more oil coupons and were refused, equals about one and one-half percent of total rations issued.

Midwest fueloil men have repeatedly shown themselves outstanding in operating efficiencies, in battling for the good of the industry. Probably with their helpful suggestions, next year's rationing plan can be more acceptable to the Chicago group.

WHY EXPERIMENT?
Kraissl Products Offer Proved Performance

Kraissl Class 60 heavy oil pumps



known and used as standard equipment for many years wherever independent pump and motor sets are required and as booster pumps for pump type burners.

Kraissl Class 72 Strainers and Filters

Single and duplex types for suction and discharge service. Any practical degree of filtration. A necessity on every fuel oil line to protect pumps and burner nozzles. Available for low pressures as well as high pressures up to 500 pounds hydrostatic test.

Kraissl-Trumbull #522 Fuel Pump Unit

for gravity type oil burners having a burning capacity of not more than 3 gallons per hour. A rugged, dependable, wall pump approved by Underwriter's Laboratories, Inc.

Write for literature and dealers prices.

THE KRAISSL COMPANY
INCORPORATED
295 WILLIAMS AVENUE
HACKENSACK, NEW JERSEY

Washington Oil Thinking Related at Peoria Meeting

THREE TOP-FLIGHT WASHINGTON men were among the speakers at the war convention of the Illinois Petroleum Marketers Association, held at Peoria February 17 and 18. In the business session of the convention all existing officers and directors were reelected for 1943, and one new director, Fred Blumankamp of East St. Louis, was added to the board. The association's president is C. S. Rosenthal, president of Apex Motor Fuel Co., Chicago.

Robert H. Collacott, head of the Refined Products Section of OPA's oil price division, discussed relation of price to supply and stressed advantages of retaining, insofar as possible, all advantages of the competitive system. Typical of his reasoning, and reflecting OPA price thinking, were these statements:

". . . you cannot direct supply except in the broadest and most general way by price control. It may seem queer to you that as soon as supply is limited more pressure is put on prices by the buyer than by the seller. If you found your community deprived of meat or milk or moustache cups because price ceilings prevailed which would not attract those desirable commodities your Chamber of Commerce and luncheon clubs would be in Washington pronto.

"Now the pressure applied by those pilgrimages is of no casual sort. As a rule the governor and a couple of senators want to know and they have every right to know. But suppose price actions were taken in such a case without any further considerations. No sooner would an adequate supply of moustache cups begin flowing into the starved community than a new area from which this supply had been diverted would start setting the same political machinery in motion.

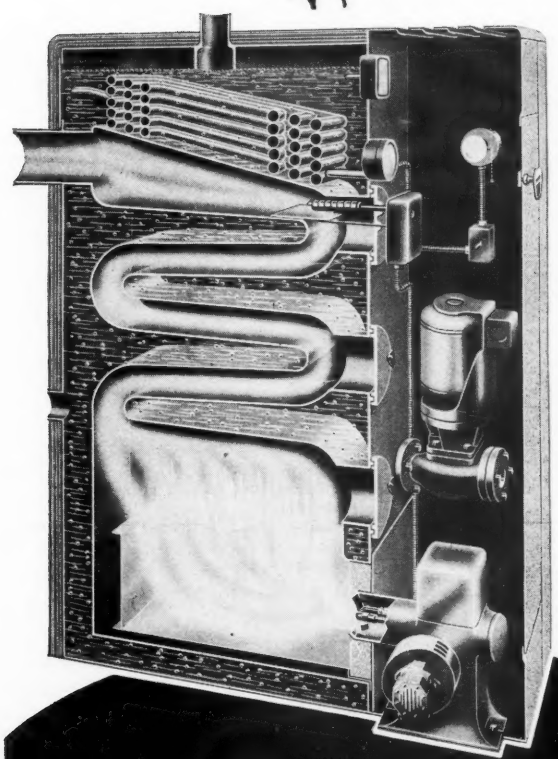
"This process could be repeated until the entire nation had been treated to a price increase, whereas the first community would have to start the process all over again.

". . . when there is a demand and an *unused* productive capacity, a higher price is an effective and proper device for causing an increased supply, but when the supply can no longer be expanded then some system of allocation or rationing must be employed as a substitute for the inflationary and futile method of price increase. We can, of course, and we

"Ike" has first call—

Once upon a time, we of Penn Boiler had nothing to do but build heating equipment; we bent all our energies in that direction, and we think we made a good job of it.

But times have changed, and General "Ike" Eisenhower, and all the other Generals commanding our far-flung battle forces have first call on our production, for we are engaged one hundred per cent in producing materials of war — materials of war that will help speed the day when victory is won and we can go back to building heating equipment, and building it *well.*



BUY UNITED STATES WAR BONDS AND STAMPS

PENN BOILER & BURNER MFG. CORP.

E. C. STAUFFER, PRESIDENT

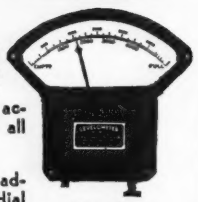
LANCASTER, PENNA.

fueloil & oil heat

should see to it that those who are directed to supply those areas are not unduly penalized for their compliance.

"In war or in business, competition will be the most important influence in determining the actions we take. Today the nations against whom we are fighting are determining for us many of the measures we are obliged to take. But while we are doing that many are finding new methods of efficiency which they will retain after the war. These new methods will then establish the competitive level which the rest of us will have to meet."

WITH OIL CONSERVATION MORE VITAL THAN EVER, Its Accurate Check-Up Is Important— INSTALL LEVELOMETER TANK GAUGES "They're Dependable"



A LEVELOMETER gauge on an oil tank installation eliminates guesswork—it insures accurate readings at all times.

Large Model LEVELOMETER 12" x 12" case

Convenient, remote reading:—LEVELOMETER dial may be located at any reasonable point from tank and—large graduations and numerals make it easy to read.

Midget LEVELOMETER Lowest priced Remote Reading Gauge Built

LEVELOMETER tank gauges, approved by Underwriters' Laboratories, operate on an exclusive adaptation of the hydrostatic principle. No liquid is used in indicator to be affected by temperature changes, to evaporate, stain glass or to be blown out due to excessive pumping.

Small Model LEVELOMETER 6" x 6" case

Get complete details regarding LEVELOMETER tank gauges—the Remote Reading gauges that insure accurate — trouble free check-up.

THE LIQUIDOMETER CORP.
36-19 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

Deputy Petroleum Administrator Ralph K. Davies praised the oil industry for its continuing efforts to be helpful to the Administrator, explained the relationship between PAW and OPA on price matters and emphasized the necessity of much wider joint use of facilities in wartime. Representative statements were:

"Managing an economy so complex as ours is truly a stupendous task. At best only a rough job can be done, what with the limited experience of this country in this kind of administration and the necessity for assembling on short order a colossal organization. Where the result to date falls short, let us remind ourselves of the size of the undertaking, of the fact that nothing equivalent to it has ever before been experienced in this or any other country, and resolve to do our individual utmost to attain a higher level of performance rather than simply to fault-find.

". . . the Administrator believes that the petroleum industry, in order to do a proper job, must be soundly maintained. He recognizes that a bankrupt industry could not hope to perform the alloted task, and he knows that any industry must have reasonable margins of profit to continue sound as an operating unit.

". . . in time of war we are faced with the necessity of taking a short-range view. We must immediately utilize to the full present capacity every resource, every facility which contributes to the success of the immediate war drive. What is ordinarily only the duplication which is a normal charge against progress, becomes suddenly unjustifiable waste to the extent that it represents effort and materials which might be used in the prosecution of the war."

Sam F. Ninness, head of the petroleum transport section of the Office of Defense Transportation, related in detail the work of his group in fostering the elimination of duplication in petroleum delivery, in transport hauling, and in working with WPB to make available maintenance supplies for trucking. He announced the appointment of an industry committee to work out cooperative programs to save truck mileage.

H. T. Ashton, St. Louis, chairman of the committee to study the use of joint facilities in PAW District 2, outlined the work of his associates in investigating pooling at the bulk station level.

Daily Oil Deficit Cut In East

THOUGH THE FIGURES are not yet available to show the effect of sub-zero weather in Northeastern States, estimates by the Petroleum Industry War Council's Committee on Petroleum Economics show daily demand for all petroleum products exceeding supply by only 72,000 barrels a day, instead of the 200,000 barrels a day that was originally estimated for the first quarter of 1943. The February daily deficit is estimated at 105,000 bbls., and March will show a surplus of 46,000 bbls. a day. These figures take into account the reduction in gasoline use due to restrictions on pleasure driving, but they do not include the latest 11% cut in New England, New York and Pennsylvania fueloil coupons. This cut the Committee calls "unnecessary and inequitable to the consumers in those areas."

A breakdown of supply and demand which was issued by the Committee on February 2, shows (in thousands of barrels a day):

District 1 Supply

	Feb.	*Mar.*	*1st Quarter*
Local production ..	79	87	79
By rail	826	881	832
By pipeline	186	198	183
By barge and tanker	152	177	171
Total Supply ...	1,243	1,334	1,265
District 1 Demand (Local and Export)			
Gasoline	453	451	449
Kerosene	155	138	149
Distillates	316	277	319
Residuals	306	301	297
Other	95	98	100
To other districts ..	23	23	23
Total Demand ..	1,348	1,288	1,337
Changes in stocks	—105	+46	—72

The increase in rail receipts reflects the anticipated effect of the shorter haul from the end of the big-inch pipeline in southern Illinois, which was officially opened Feb. 19, at Norris City, Ill.

Rail shipments during January declined from week to week, and advanced sharply in February. From the recent high for the week ended January 9, when rail shipments to the East averaged 822,837

New G-E advertising to help you get Summer Service...

Every G-E Dealer who services heating equipment should be interested in the advertisement reproduced at the right, which will appear in May issues of *American Home* and *Better Homes & Gardens.*

It is the first of several messages urging home-owners to have their heating plants checked thoroughly this summer—urging them to call *G-E Dealers* for this work, no matter what make heating plant they have.

We believe this advertising will help you in two ways:

1. It should help you to get *added* service business this summer, spreading the work over slack months and avoiding some of the rush next fall;
2. It should help to put you in touch with good prospects for new G-E heating equipment after the war.

We're sure this practical idea—backed up by our national advertising—can help you in these difficult times. But don't expect the advertising to do it all alone. Do *your* part by going out after this servicing business as soon as cold weather ends. *General Electric Company, Heating Division 3483, Bloomfield, New Jersey.*

GENERAL ELECTRIC

fuel oil & oil heat

"WELL, BOSS ...WE MADE IT!"

"A tough winter, for sure ... but I limped through, cracked grate and all. Still kinda groggy ... but get my innards checked over, Boss, and I'll show you some real hot stuff when winter socks us again."

Maybe it seems a bit "previous"—but right now really *is* the time to have your heating plant serviced ... mechanics will be a lot scarcer, *and busier,* next fall. No matter what furnace or fuel you're using ... to avoid possible service headaches later on, call your local G-E Dealer today!

Also our 40 page booklet, "Tips on Fuel Conservation," can be mighty helpful to you, now and later. For free copy, address General Electric Company, Heating Division 3125, Bloomfield, New Jersey.

GENERAL ELECTRIC

bbls. a day, movement declined to an average of 818,331 bbls. a day for the week of Jan. 16; 798,552 bbls. in the week of Jan. 23; 796,458 bbls. in the week of Jan. 30; back to 838,327 bbls. a day in the week ended February 6, and down again to 806,986 in the week of February 13.

In the February 20 week, daily average rail receipts were 820,553 bbls.

Officials continue to view the eastern stock situation with alarm, and warn against any optimism regarding future supplies. Administrator Ickes, broadcasting on February 18, said that fueloil and gasoline would be rationed for the duration. Mr. Ickes and others point to the continued military demand.

What these officials ignore about the future war oil situation in the Mediterranean area is the probability of considerable local supply from the Eastern Mediterranean. *Ethyl News,* a publication of the Ethyl Corporation, reports:

"North Africa, which precipitated the petroleum crisis in the East may also alleviate it, it is declared in a survey which finds that this country may be passing through the worst winter of the war so far as civilian gasoline and fueloil supplies are concerned." The paper points out that when North Africa is cleared of Axis forces, considerable oil will be available from Iran, Iraq and the Bahrein Islands.

"Haifa (Palestine) is approximately 1,200 miles from Tunisia's east coast port of Sfax," *Ethyl News* continues. "The distance by tanker, hugging close to the shores of Trans-Jordan, Egypt and Libya, would be much more, but still considerably less than the 3,600 miles from New York to Algiers. By hugging the coast a tanker could keep more than 400 miles

You are the KEY MAN of the oil burner industry!

No new burners! Not enough fuel oil! That's what we're up against today. But we're not complaining because today's sacrifices speeds tomorrow's victory.

In the meantime, service calls are going to be your bread and butter—and to help you out, Sun Oil Company is steadily pushing the idea that to conserve oil, heat and money, it's smart to consult the local burner service man regularly. That man is . . . YOU. And we're continually bringing you to the attention of thousands of our customers and millions of our listeners on the Lowell Thomas broadcasts.

You and we—together, can lay the foundation for tomorrow's prosperity—today! Are you with us? Sun Oil Company, Philadelphia.

SUNHEAT FURNACE OILS

SUN OIL CO., PHILADELPHIA

DEGREE DAY TABLES

ONE MONTH ONLY					SEASON TO DATE			
	January		Percent		(Sept. 1 to Jan. 31)			Percent
Normal	1942	1943	Change*		Normal	1942	1943	Change*
1267	1332	1463	+ 9.9	Albany	3688	3675	4167	+13.4
662	695	584	—15.9	Atlanta	1837	1646	1693	+ 2.9
922	905	932	+ 3.0	Baltimore	2569	2138	2543	+19.0
1101	1132	1226	+ 8.3	Boston	3188	2954	3395	+14.9
1220	1264	1357	+ 7.3	Buffalo	3604	3325	3850	+15.8
1219	1222	1312	+ 7.4	Chicago	3454	3081	3904	+27.0
1009	1043	951	— 9.0	Cincinnati	2901	2552	2935	+15.0
1137	1169	1184	+ 1.3	Cleveland	3231	3049	3513	+15.2
596	700	616	—12.0	Dallas	1540	1558	1479	— 5.1
1026	1087	938	—13.7	Denver	3298	3266	3038	— 7.0
1326	1285	1428	+10.0	Des Moines	3750	3330	3991	+19.9
1228	1213	1342	+10.6	Detroit	3597	3175	3835	+20.8
1249	1216	1348	+10.9	Grand Rapids	3705	3207	3840	+19.8
1146	1237	1256	+ 1.5	Hartford	3363	3266	3602	+10.3
1337	1709	1814	+ 6.1	Helena	4411	4985	4841	— 2.9
356	423	409	— 3.3	Houston	876	873	825	— 5.5
1104	1105	1141	+ 3.3	Indianapolis	3157	2722	3262	+19.8
1083	1038	1134	+ 9.2	Kansas City	2960	2602	3100	+19.1
276	208	229	+10.1	Los Angeles	659	611	583	— 4.6
931	1000	896	—10.4	Louisville	2608	2371	2650	+11.3
1329	1400	1439	+ 2.8	Milwaukee	3844	3655	4304	+17.7
1597	1379	1771	+28.4	Minneapolis	4602	4013	4989	+24.3
319	420	361	—14.0	New Orleans	794	809	739	— 8.6
1025	1056	1058	+ 0.2	New York	2884	2588	2902	+12.1
1287	1233	1396	+13.2	Omaha	3597	3361	3881	+15.5
957	1008	1001	— 0.7	Philadelphia	2654	2400	2761	+15.0
1043	1118	985	—13.5	Pittsburgh	3071	2891	3132	+ 8.3
1296	1368	1473	+ 7.7	Portland, Me.	3898	4025	4330	+ 7.6
775	880	928	+ 5.5	Portland, Ore.	2451	2392	2416	+ 1.0
1103	1117	1177	+ 5.4	Providence	3260	2987	3319	+11.1
999	1007	1022	+ 1.4	St. Louis	2728	2446	2808	+14.8
1084	1379	1055	—23.5	Salt Lake City	3308	3550	3264	— 8.0
463	431	405	— 6.0	San Francisco	1393	1220	1364	+11.8
1603	1566	1640	+ 4.7	Sault Ste. Marie	4888	4656	5085	+ 9.2
765	688	885	+28.6	Seattle	2577	2320	2515	+ 8.4
1185	1194	1285	+ 7.6	Toledo	3463	3080	3704	+20.2
929	936	894	— 4.5	Washington	2654	2242	2547	+13.6

*Compared with last year, not with normal

away from the nearest Axis air base except for the short distance along the Cyrenaican hump which is within range of Crete.

"Haifa is the terminus of the southern leg of the Iraq pipeline and is the site of the new refinery of Consolidated Oil Refineries, Ltd., which began operating in January, 1940. Capacity of this refinery is a secret, but it was scheduled to begin operating with a crude oil capacity of 40,000 bbls. a day and a cracking capacity of 20,000 bbls. a day. Because of its strategic location, it is possible that its capacity has since been enlarged."

But the situation in Tunisia during February was not reported to be entirely favorable to large-scale oil movement in the Mediterranean, and measures were being pushed in this country to increase the eastern flow of oil. Though the western leg of the 24-in. pipeline has been opened, it will not be operating at capacity of 300,000 bbls. a day for some weeks.

Work started February 15 on the 857-mile eastern leg of the 24-in. line, and full-scale construction work is under way along more than 200 miles of the route in Eastern Pennsylvania and New Jersey. Present progress indicates that the eastern extension will be completed in June.

In March work will start on the 836-mile 20-in. pipe designed to deliver 235,000 bbls. a day of gasoline to Norris City, Ill., and Seymour, Ind., for rail shipment east.

The new trans-Florida 8-in. line between Carabella and Jacksonville is being filled with gasoline for barge movement up the coast. It will have a capacity of about 30,000 bbls. a day.

Other recent developments include: the ban on gasoline shipment in tank cars, and the diversion of the cars to hauling fueloil; the PAW order halting barge shipments of gasoline into West Virginia and Pennsylvania for local use, and the use of these barges for fueloil; and a WPB order expediting the manufacture of 800 tank trucks for over-the-road hauling.

Coupled with the effort to increase the flow of oil is an intensive campaign to frighten as many oil users as possible to convert to coal.

◈

Harry S. Wheller, former vice-president of L. J. Wing Mfg. Co., New York, was elected president and general manager at a recent meeting of the Directors.

Mr. B. Smart Says:

THE KOVEN WATERFILM BOILER BURNER-UNIT IS JUST WHAT YOU'VE BEEN LOOKING FOR!

THIS CUTAWAY VIEW SHOWS COMPACTNESS AND ACCESSIBILITY OF BURNER, HOT WATER COIL AND ALL CONTROLS

A PATENTED BOILER PLUS AN EFFICIENT BURNER

The MATCHED WATERFILM BOILER-BURNER UNIT in its heavy steel De Luxe enclosing jacket of two tone gray hammerloid combines the popular Fast Steaming WATERFILM Boiler with an efficient oil burner forming a completely co-ordinated oil burning unit. This smart appearing heating plant offers you the Utmost in Heating Comfort and abundant domestic hot water from built-in-coils at Low Fuel Costs.

Models are available to meet the *Individual* heating requirements of the small or large home or multiple family house.

The finest oil burner that money can buy . . . that skill can produce *yet surprisingly economical to operate,* the WATERFILM oil burner co-ordinates perfectly with the High Efficiency and Low Oil Consumption of the KOVEN WATERFILM BOILER—the fastest producer of steam on the market—the wisest buy for your home, office or commercial plant because a WATERFILM BOILER-BURNER UNIT is tailored to meet your *Individual* heating needs!

Write or telephone today for complete details concerning KOVEN WATERFILM BOILERS.

WATERFILM BOILERS, INC.

154 OGDEN AVENUE JERSEY CITY, N. J.

PLANTS: Jersey City, N. J. and Dover, N. J.

New Products

Variable-Speed Motor Developed at Yale

THE THEORY and characteristics of a new type of poly-phase, adjustable-speed motor for alternating current have been developed at Yale University, and were presented in a paper before the recent meeting of the American Institute of Electrical Engineers by Associate Professor A. G. Conrad, S. T. Smith and P. F. Oudung, students, who have worked out the circuit. Though these motors are not now in commercial production, they can be made to sell at competitive prices as soon as materials are again available.

Development of such a motor may be extremely significant to the warm air heating industry, in which variable fan speeds are desirable to get room air delivery in direct ratio to bonnet temperatures.

Prof. Conrad reports, "I believe this motor would be very definitely adaptable in the heating and ventilating business where accurate control of air flow is desirable. It can be made in sizes of 50 hp. or less, and has desirable characteristics even in small sizes."

Radiant-Heat Process For Better Combustion

A "RADIANT-HEAT Oil-Economizer Combustion Process" has been announced by Theodore Nagel, New York, to improve combustion efficiency on mechanical oil-fired steam and heating installations. The process employs a small metal casting on the blast tube of pressure type burners to bring the combustion air in closer contact with the oil, and create a better mix.

The process has been used with considerable success on New York Central locomotives, and in marine applications, according to test reports on these applications issued by Mr. Nagel.

Test reports on eight installations, six different makes of domestic oilburners showed an improvement in combustion efficiency from an average of 10.72% CO_2 without the economizer to 13.48% with it. At the same time stack temperature was reduced from an average of 505° before the economizer was installed, to 424° after its installation.

Plastic Drill Case

ANNOUNCEMENT of a new Thor plastic ¼-inch portable electric drill has just been made by Independent Pneumatic Tool Co., Chicago, after nearly a year in which large quantities of the drill have been produced under Army contract.

Plastic Thor Drill

The grip handle, field case and gear case of the drill are constructed of a new, tough, light weight "Thorite" plastic developed exclusively for Thor.

With military requirements on exclusive production of the Thor plastic drill since its development now completed, the tool is for the first time made available to all war industries.

Airtemp Heater Small

AIRTEMP DIV., of Chrysler Corp., Dayton, Ohio, has announced a new, small, oilfired space heater with a capacity of 50,000 Btu. It is known as Model RH-3, and is a combination radiant and convection heater.

Fired with a special vaporizing burner, the unit can be operated on fueloil or aviation gasoline by adjusting the automatic control valve. The shell is 16-ga. hot rolled steel, electric welded.

Standard equipment is a six-gallon fuel tank and a six-inch draft regulator. The unit is 63 ins. high, 26 ins. long, and 20¼ ins. wide. It is being made at present only for special war purposes.

Warm Air Short Course Geared to War Times

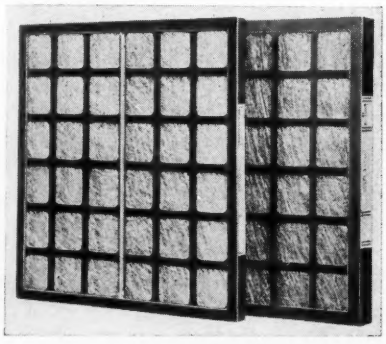
UNDER THE SPONSORSHIP of the National Warm Air Heating and Air Conditioning Association, the Twelfth Annual Forced Air Conference, more familiarly known as the Michigan Short Course, will be held at Michigan State College, East Lansing, on March 22 to 25 inclusive. The course this year is tied to the war effort with the general theme of saving fuel through proper engineering, designing, installation and servicing.

At the luncheon meeting on March 24, F. M. Jordan of Timken Silent Automatic will talk on servicing wall flame and gun type oilburners, and A. Frantz of Motor Wheel will cover service on vaporizing burners.

Dust-Stop Filter Changed

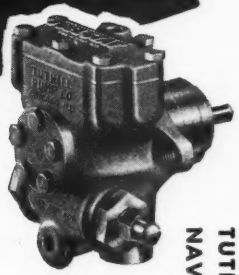
OWENS-CORNING FIBERGLAS CORPORATION has designed a new 'war" Dust-Stop air filter which retains the high filtering efficiency and economy features of the peacetime Dust-Stop, while conserving metal and other critical materials.

A square grill of heavy Kraft cardboard replaces the familiar metal grill with round openings. A standard filter adhesive is used in place of the non-inflammable Dust-Stop adhesive which is no longer available.



War-time filter case

More Fiberglas Dust-Stop air filters were sold in 1942 than in any previous year. Production is being expanded to meet growing requirements.



So long as Tuthill Pumps and Fuelstats are needed to help defeat the Axis, delays and shortages in filling other pump requirements are to be expected.

Just as rigid training and tough service make for better soldiers, war requirements are making Tuthill Pumps and Fuelstats even more dependable than ever.

Until victory is won and these superior Tuthill pumps get their honorable discharge, you can rely on Tuthill's authorized service stations and the factory to keep your Tuthill equipment operating efficiently through repairs and reconditioning.

TUTHILL PUMPS ARE SERVING ARMY NAVY • AIR FORCES • MERCHANT MARINE

Write for Tuthill General Catalog

Tuthill

TUTHILL PUMP COMPANY

939 EAST 95TH ST. • CHICAGO, ILLINOIS

fuelsoil & oil heat

for

FUEL ECONOMY

in Peacetime . .

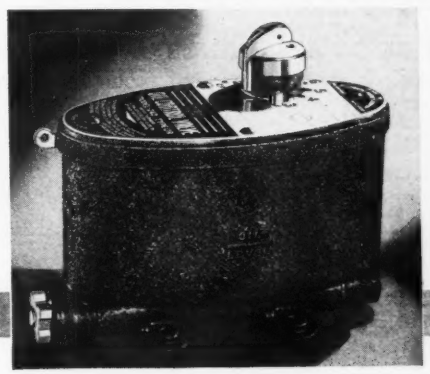
FUEL CONSERVATION

in Wartime . .

ap

DEPENDABLE

Oil Control Valves



Economy or CONSERVATION — They both mean SAVING FUEL . . . One a peacetime "sales advantage"; the other, a wartime Necessity and a definite aid to victory. . . .

A-P DEPENDABLE CONTROLS are helping thousands of families to healthful, economical heating, in spite of fuel rationing. For manufacturers of the leading Oil Burning Circulating Heaters were wise enough long before the war to STANDARDIZE of A-P Controls for accurate, dependable and economical fuel control — proven ability to get every last degree of heat possible from every ounce of fuel.

Retailers, alert merchandisers looking ahead for post-war sales, will keep in touch with their customers now using A-P Controlled Heaters. They'll find SATISFIED users who have proved the advantages of A-P Controls — and will be ready to buy the new post-war heaters using them. And, of course, A-P Controls will be even better — engineered and built on new knowledge, continuing research.

AUTOMATIC PRODUCTS COMPANY

2458 NORTH THIRTY — SECOND STREET

MILWAUKEE WISCONSIN

ap DEPENDABLE *Oil Control Valves*

HELPS FOR READERS

1941-1942 SPECIFICATIONS BOOK OF OIL BURNERS AND FUELOIL

Gives specifications for 2200 models and makes of burners by 237 manufacturers. Gives grade of oil officially specified for each burner, method of atomization, air source, ignition data, oil feed, gph rating and motor size 50c
(Bulk purchase orders on request.)

BEACON BOILER REFERENCE BOOK

Contains 7116 listings of boilers and boiler-burner units up to 2,000 sq. ft. steam and equivalent hot water—new, old and obsolete. Complete ratings and specifications on 195 makes, 412 trade names. Particularly valuable regarding old and obsolete models. Gives model number and name, rating, firing rate (coal and oil), heating surface, firebox dimensions, floor to crown sheet, grate size, floor area, base height, chimney dimensions, smoke pipe diameter and whether boiler is steel or cast iron. Also, name and last known address of manufacturer and indication of whether the model is obsolete, or when it was made. 554 pages. Handy size for desk, brief case or desk. Sturdy binding ..... $3.00 per copy; $3.25 if sent C.O.D.

PRACTICAL OIL BURNER SERVICE

64 pages of the best articles published in AIR CONDITIONING & OIL HEAT during recent years. Excellent if you want to increase your service business during the war. Many topics covered. How to balance steam systems, increase efficiency, test units, baffle boilers and furnaces, adjust burners, figure combustion chambers, calculate stack loss, etc. $2.00

KNOWING THE A TO Z OF CO_2

This invaluable booklet shows you how you can test your customers' burners by modern methods obtaining a high CO_2 rating and a low stack temperature. Be efficient and use this up-to-date booklet in your service work $1.00

SERVICE ON ALL MAKES OF OIL BURNERS

This book is essential in your repair and service work. Gives 10 detailed analyses of the most common basic service problems and shows you how to solve them efficiently 50c

REDUCING FUEL OIL BILLS

This amazing booklet will help you show homeowners, in a language they can understand, how you can save them money. Minimize your customers' oil bills and make a real profit with the right kind of service 50c

INTERESTING AND VALUABLE BOOKS AND REPRINTS

"Herkimer Service Manual." Now you can buy this famous manual. It is a complete service and installation guide for oilburners, gas furnaces, and stokers written for the expert as well as the beginner. It is distinguished as the bases of the Herkimer Institute courses. $4.00

"Oilheating Handbook," by Han Kunitz. Newly revised edition. Clear and concise explanation of oil burner systems and classification. Discusses combustion and heating problems, surveys, installations and retail selling. $3.50

"Short Cuts to Heat Loss Data." When you're figuring heat loss you can save time by using this accurate, easy method getting fast results without lengthy figuring..... 25c.

"Herkimer Coal Burner & Stoker Manual." Covers installation procedure. Also detailed explanation and remedy for 18 common trouble complaints with many subheads under each title. Includes a double-page stoker complaint and trouble diagram. This is a highly valuable tool for dealers and service men to use on the job. Prepared by practical men from regular daily experiences. 40 pages. Pocket size. Black, heavy paper cover. $1.00

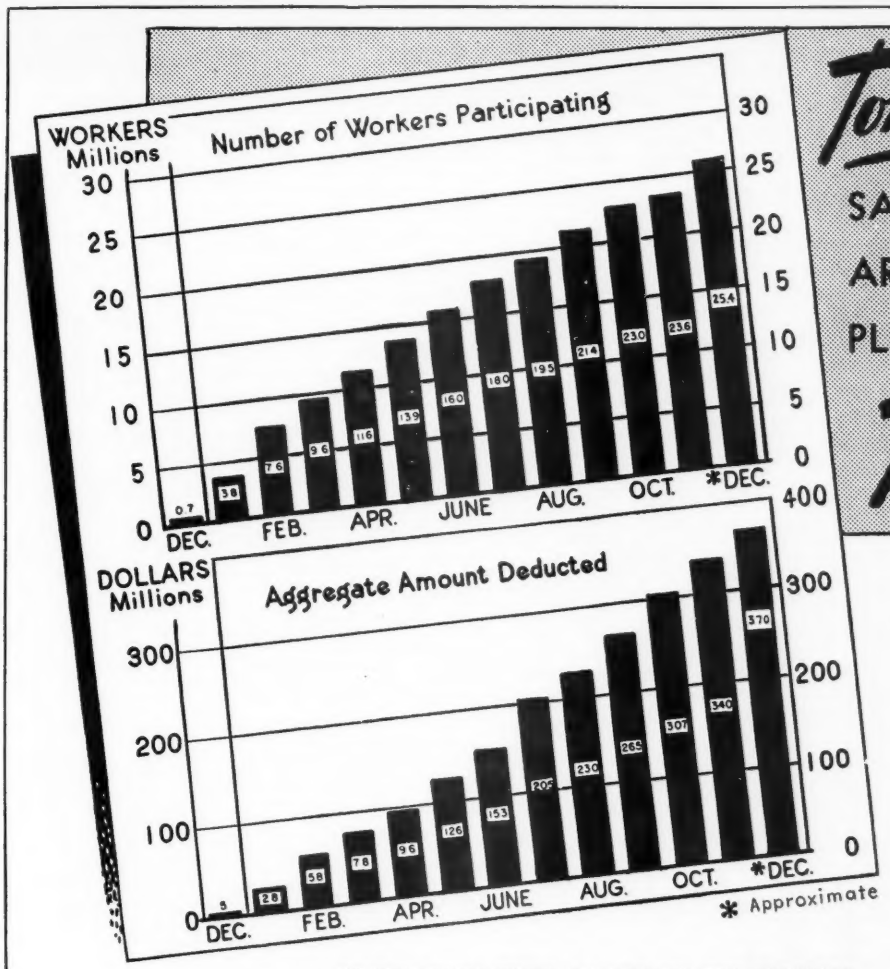
"Selling and Handling Fueloil." A 32 page booklet covers fueloil distribution from bulk plant to customer's tank. Covers planning and operating bulk plants, operating tank trucks, selling fueloil, specifications and variables, automatic deliveries, etc. ..... 50c.

"Oilburner Combustion Chambers." Complete and concise study, illustrated with charts, illustrations and reference tables. Text covers both precast and those built on-the-job. 23 pages. ..... 50c.

"Degree Day Handbook." Useful for computing oil consumption by the degree day method. $3.00

Because of the thousands of small orders we receive, we ask that cash, stamps, money orders or checks be sent with all orders. If you wish to order C.O.D., an extra charge of 10% is made to cover shipping and collection fees.

FUELOIL & OIL HEAT 232 MADISON AVENUE NEW YORK CITY, N. Y.



Tomorrow's SALES CURVES ARE BEING PLOTTED . . . Today

THESE CHARTS SHOW ESTIMATED PARTICIPATION IN PAYROLL SAVINGS PLANS FOR WAR SAVINGS BONDS (*Members of Armed Forces Included Starting August 1942*)

STUDY THEM WITH AN EYE TO THE FUTURE!

There is more to these charts than meets the eye. Not seen, but clearly projected into the future, is the sales curve of tomorrow. Here is the thrilling story of over 25,000,000 American workers who are today voluntarily saving close to FOUR AND A HALF BILLION DOLLARS per year in War Bonds through the Payroll Savings Plan.

Think what this money will buy in the way of guns and tanks and planes for Victory today—*and mountains of brand new consumer goods tomorrow.* Remember, too, that War Bond money grows in value every year it is saved, until at maturity it returns $4 for every $3 invested!

Here indeed is a solid foundation for the peace-time business that will follow victory. At the same time, it is a real tribute to the voluntary American way of meeting emergencies that has seen us through every crisis in our history.

But there is still more to be done. As our armed forces continue to press the attack in all quarters of the globe, as war costs mount, so must the record of our savings keep pace.

Clearly, on charts like these, tomorrow's Victory — *and tomorrow's sales curves*—are being plotted today by 50,000,000 Americans who now hold WAR BONDS.

EVERYBODY EVERY PAYDAY AT LEAST 10%

Save with War Savings Bonds

This space is a contribution to America's all-out war effort by FUELOIL & OIL HEAT

fueloil & oil heat

Reader's Forum

DOME OIL COMPANY
Washington, D. C.

Editor:

Fueloil rationing probably will be revised before next winter, and I believe when changes are made in the system, it is imperative that it be simplified. I would not subject myself and our organization to another winter such as we have just put in, even if it meant closing the business.

Application forms should be greatly simplified. Errors made by users and board personnel in filling out and processing these complicated forms have given many people less oil than they were entitled to, and others more than they should have.

For this reason, this year's consumption should not be used as a guide for next year's ration, as I believe fully 50% of the rations were not properly figured, either due to consumer or board errors.

The securing of auxiliary rations for illness and aged people should be greatly simplified, eliminating the heating engineer's certificate. A statement from a physician should entitle the user to get practically his normal amount of oil, based on his past consumption.

Further, I feel that more consideration should be given to one-story structures and large, exposed homes with high ceilings. These users have suffered under the floor area formula.

The lateness in starting the program put such a load on dealers that there is no accurate way of knowing how the present system might have worked out if started in time. But I believe the present system involves entirely too much "kindergarten" work of cutting and pasting coupons. With about 3,500 customers, we have had to maintain a force of from four to seven people doing nothing but this work, which, in my opinion, could be entirely eliminated.

Coupons, I believe, should be used in rationing only when the product and coupon are exchanged at the time of sale. That this was not feasible in fueloil rationing is shown by the provision that dealers have the coupons on deposit in their offices. I favor a plan that would entirely eliminate handling coupons on the flow-back system, and I think it is workable.

I favor the use of a certificate or a letter of credit, which could be made up on safety paper, and the amount of oil to which a customer is entitled for the season be perforated with a protectograph machine like those used on checks, to prevent forgery. This form would be made up in triplicate; one copy for the consumer, one for the dealer, and one for the primary supplier.

While I believe that customers should not be "frozen" to one dealer, and not permitted to buy wherever they can obtain oil, practical experience during the past season indicates this is what happens in practice, under scarcity of product. Every dealer has had orders ahead all the time from his own customers to take all the oil in his tanks, and was unable to take on other companies' customers, even if he had felt like doing so.

The certificate should have space for a record of deliveries made by the dealer, which would serve as a record for the customer of his consumption as compared to his allotment, and would be the only clerical work required by the dealer to determine the standing of each customer as far as his ration is concerned.

HEIL

is the Name to Remember

— for oil burners . . . oil-designed furnaces and boilers *that assure you of:*

- ✓ Satisfied, loyal customers
- ✓ Minimum service trouble
- ✓ Efficient, economical operation
- ✓ Design features that sell
- ✓ Profitable manufacturer-dealer relations

H-1

HEIL ANSWERS UNCLE SAM'S CALL . . . and helps the Arsenal of Democracy supply materials for Victory!

THE HEIL CO.

GENERAL OFFICES: MILWAUKEE, WISCONSIN

DO YOU HAVE AN OIL BURNER PROBLEM?

AN OIL BURNER HANDBOOK

(*L. J. Whelan*) *Master Plumber and Heating Contractor,* 554 Atlantic Ave., Brooklyn, N. Y. Everyone knows, of course, that the use of oil-burners has been definitely restricted and conversion to coal-burning plants seems to be the order of the day. However, there are innumerable cases where such conversion cannot be carried out, and oil-burners will continue to function, although in smaller numbers than before. It is doubly important that those units which will be operating this coming winter on oil, should be so adjusted and regulated that the maximum heating efficiency will be obtained without fuel waste, and the importance of this fact contributes greatly to the timeliness of this book. Both domestic and industrial burners are covered, and one outstanding feature of the work is that it is written in the language of the installer and worker, can be understood by any home owner and is equally of value to the experienced man or the beginner in the field. Chapter headings include: Fuel Oil; Combustion; Storage Tanks; Installations; Servicing; Controls, etc. Part three is headed "Care of the Oil Burner" and gives information on proper starting, regular care, and problems which may arise in connection with the maintenance and operation of oil burners. Diagrams and drawings are used to good advantage throughout the 245 pages of the volume. Cloth bound.

$2.50

In cash, check, or money order

FUELOIL & OIL HEAT
232 Madison Ave.
New York, N. Y.
Gentlemen:
Enclosed find $2.50 for my copy of An OIL BURNER HANDBOOK by L. J. Whelan.
Please mail to
Name .....
Address .....
.....

There should be a dead-line placed so far as the time the customer would have to secure his certificate and deposit it with his dealer, and this should be not later than August 15. It would be preferable to start the season June 1 and end it May 31.

When the customer deposited his certificate in duplicate with the dealer, the primary supplier's copy would be forwarded to him by the dealer, which, when received in total, would be the exact figure which the primary supplier would have to arrange to deliver to his accounts for the heating season. The slight amount of switching around by customers from one dealer to another, (which would be permitted under the certificate) would be so small that no dealer could benefit or suffer to any great extent over the entire heating season.

The total ration could be reduced by a certain percentage if an unusually warm winter developed, by merely issuing an order to that effect. The total ration would be computed on the basis of a normal winter, minimum requirements, and primary suppliers' deliveries to dealers would be split up by months according to degree-days accumulating. That is, a dealer would be entitled to receive so many gallons per degree-day, based on normal degree-days for that area. Certificate values, of course, could be increased by order if an unusually severe winter developed.

I believe there should be no indefinite values on fueloil rations; I think they should be figured at the minimum on which a person can be expected to get along, and remain at that figure. Definite figures would be available on the entire winter's requirements for every area, and plans made to supply that amount if humanly possible. If not possible, everyone would merely have to be rationed according to the supply by his dealer, who would divide the available supply equitably. This has been done in practice this year. Our experience shows that additional coupons have been issued, and will be issued in a quantity which will almost offset the reduction in Period 3 and 4 coupons.

I do not believe any system that uses coupons of any size or denomination is necessary in fueloil rationing; and I further believe that the work involved and the errors which are likely to occur make it very desirable that coupons be eliminated.

As to the separation of the heating season into periods, while I recognize the desirability of not allowing the consumer to use and purchase his entire winter's ration at any one time, the complications which arise in the delivery under such periods is great, and not in the interest of economical operation. I think the advantages of eliminating periods out-weigh the reasons for keeping them in the system.

PAUL J. CRUMMETT,
General Manager.

◈

James C. Derieux of Columbia, S. C., has been named OPA Administrator for Region 4 with headquarters at Atlanta, Ga.

Martin Schiff, chief engineer of the Century Electric Co., St. Louis, Mo., died suddenly February 15, aged 53.

Robert T. Collier, director of the marketing division of Petroleum Administration for War, has resigned to return to Great Lakes Carbon Corp.

MONARCH NOZZLE TIPS

Fig. F-80

Servicemen: It's up to you to keep hundreds of thousands of oil burners in operation for the duration with a *minimum* of new material. New Nozzles are still available on A-10 ratings but you should take good care of those already in service.

Don't:

1. Clean orifices with needles, pins, etc.—A tiny scratch will ruin the spray. Use sharpened toothpicks.
2. Remove hard carbon from the slots of the disc or inside the nozzle with pointed metal objects or files—a damaged seat or imperfect slot means another nozzle for the scrap. Use a soft brass wire brush and wash all parts thoroughly before assembly.
3. Carry service nozzles unprotected and jumbled together in a box—sharp corners will nick the orifices. Keep them in individual cartons or in a Monarch nozzle box.

Do you have our Catalog D?

MONARCH MFG. WORKS, INC.
E. WESTMORELAND AND SALMON STS. PHILADELPHIA, PA.

Canadian Oil Users Register for Rationing

HOMEOWNERS in Canada will be unable to get delivery of fueloil for domestic purposes after March 15, if they have failed to fill in a form by February 20, in which they state the amounts of fueloil they have purchased since July 1, 1941. The forms were circulated by fueloil companies, together with the warning that if they are not completed and in the oil controller's office by February 20, "we shall not have the privilege of making further deliveries to you after March 15."

Consumers were asked to indicate the number of gallons of fueloil they have purchased from July 1, 1941, to June 30, 1942, and from July 1, 1942, to December 31, 1942; type of oil used; capacity of storage tanks; type of heating system; availability of grates for conversion to coal heating, and any coal on hand.

A statement issued by the oil control's office, at Ottawa, said: "As a preparatory means of rationing domestic fuel oil, if such a step becomes necessary during the winter of 1943-44 the oil controller has begun this survey."

BODA Reelects Officers

FRANK E. SPENCER, president; J. Loeffler, vice-president; R. E. Curran, treasurer; and F. B. Caldwell, secretary, all were reelected to their offices for the tenth consecutive term by the directors of the Burning Oil Distributors Association.

At the annual meeting members elected the following directors for a two-year term: F. E. Spencer, Spencer Petroleum Co.; J. Loeffler, Commerce Petroleum Co.; R. E. Curran, Suburban Oil Co.; and C. R. Jonswold, Triangle Oil Co.

Milwaukee Oil Men Hear Collacott of OPA

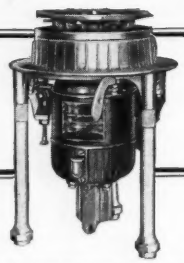
J. M. MCLAUGHLIN, president of Wadhams Division of Socony-Vacuum Oil Co., arranged an informal luncheon at the Athletic Club, Milwaukee, February 20, for a group of 16 oil men to meet and hear Robert H. Collacott, head of the Refined Products Section, Oil Price Division, OPA. Collacott's discussion was principally on operating economies possible under a competitive system, as contrasted to direct Government fiat if an industry fails to adapt itself to wartime needs.

A subsequent discussion of fueloil rationing was led by Ed Stegen, regional rationing chief, of Chicago, and Don Allen, OPA administrator for Wisconsin.

Gulf Oil Corporation has announced through R. M. Bartlett, general manager of fuel oil sales, three promotions to assistant general managerships. L. F. Craig will be in charge of industrial fueloil sales in the Pittsburgh, Toledo and Louisville sales divisions and also petroleum coke sales. A. C. Stapf is in charge of industrial fueloil sales in the Eastern Seaboard area, and all wholesale and retail heating oils. J. F. Walton, Jr., is in charge of industrial fueloil sales in the southern and Gulf Coast areas, and all cargo sales at coastal ports.

Irving Spiro, formerly of the dissolved firm of Spiro & Klausner, New York, has become president of Willow Supply Corp., Bronx, N. Y.

THE TORIDHEET LIBERTY LINE



QUICK SHIPMENT FROM STOCK

We can make immediate shipments from stock of the following equipment.

Model B Wall-Flame Burners
Model C Wall-Flame Burners
Model S Pressure Burners
Model G Pressure Burners
Series OEO Air Conditioning Furnaces
Model 140 Water Heaters

Also, prompt shipment can be made from warehouse stocks of oil-burner boilers.

You owe it to yourself and to your community to replace worn-out equipment with Toridheet—because Toridheet was created to *cut* oil consumption.

This is the time to tie up with Toridheet. Write today for complete information.

CLEVELAND STEEL PRODUCTS CORP.
TORIDHEET DIVISION CLEVELAND, OHIO

Oil Burners ★ Air Conditioning Units ★ Oil-Burner Boilers
Coal and Gas Furnaces ★ Water Heaters

Going Strong SINCE 1922

Frank A. Parker of Riverdale-On-Hudson wrote us recently:

"The enclosed fragment of carbon and wire hook is all that is left of my motor brush which has been in considerable use *since 1922.* I wish that you would kindly replace with a new brush and hook."

Here is concrete evidence that Ohio Motors give extra long satisfactory service, and this instance is not at all uncommon.

OHIO Reliable MOTORS

THE OHIO ELECTRIC MFG. CO.
5913 Maurice Ave., Cleveland, Ohio

OHIO MOTORS

New Englanders Go Cold; Storage Full, Beckwith Says

THOUSANDS of New England fueloil and kerosene users were cold in the first days of March, while oil dealers were looking for additional storage for incoming oil, according to Fred N. Beckwith, executive secretary of the Oil Heat Institute of New England. The trouble, says Mr. Beckwith, was that they had no No. 4 coupons, and No. No. 5s were not yet valid. During the latter part of February and early March he wired and wrote New England senators, representatives and government officials, after which the validity of No. 5 coupons was advanced to March 8.

It was possible, Mr. Beckwith pointed out, to exchange No. 5 coupons for currently valid No. 4s, but this entailed a loss of time and manpower that many users could not afford. Users were required to get their coupon sheets from their oil dealers, take them to their local rationing board, stand in line to wait their turns to make the exchange, and return the sheets to their dealers. In many cases this operation required a full day to complete, and many users could not afford to take this time from their work. Form 1104, the filing of which is required in making an exchange, proved too formidable for some users, though nearly March temperatures were close to zero.

Period 4 coupons in Massachusetts had been reduced in value to eight gallons for domestic fueloil and kerosene users, and this 20% cut required customers to use more coupons than had been planned. In view of available oil supplies, and the criticism that Petroleum Industry War Council leveled at the drastic cut, it seems that the reduction in coupon value was unnecessary, said Mr. Beckwith.

The situation of one large Boston oil dealer is reported as typical. This dealer has 3,000 customers, 1,400 of which were completely out of No. 4 coupons by the first of March, and needing oil. The situation was further complicated by his storage tanks being too full to accept any of the incoming oil due him.

It was to relieve this condition that started Mr. Beckwith on a campaign by wire to members of Congress to ask for help. A typical wire read:

"OPA trying to justify their untenable stand against advancing No. 5 coupons. These are not so-called hardship cases but include the great majority of oil users who now find their No. 4 coupons exhausted. Under present conditions the changing of coupons entails excessive labor three ways: (1) the consumer is obliged to go to his dealer and pick up coupon sheets; (2) the consumer must then go to local rationing board and fill out auxiliary ration form 1104 in order to exchange No. 5 coupons for currently valid coupons; (3) the consumer must then take the valid coupons to his dealer before he can get oil. Meanwhile we can freeze. All these operations take considerable time, create extra work for the dealer and the boards who are already overloaded and waste the time of the consumer. This involved method does not save oil and has absolutely nothing in its favor. On the other hand, advancement of No. 5 coupons would help all concerned, consumers, local boards and oil companies alike. Do not accept brush off. Insist on immediate advancement. Situation critical throughout New England. This is a chance to go to town for your constituents. We are depending on you."

OIL IS AMMUNITION
USE IT WISELY

"OIL MISER" BURNERS

Engineering Co-operation and Services continue as always

Our greatly increased factory facilities are now completely on WAR PRODUCTION.

. . . But our Engineering Division is fully manned and we are rendering every possible service to the trade.

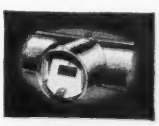
REPAIR PARTS (subject to Priorities Order) are and will be available.

PETROLEUM HEAT & POWER COMPANY
Makers of good oil burners since 1903
STAMFORD CONNECTICUT

WARM AS TOAST...

ON 25% LESS FUEL

Severe fuel rationing has put *sales magic* into these simple words, "A Field Control keeps you *warmer* on *less* fuel!" Always a best-seller because it cut fuel costs from 5% to 25%, the fuel saving Field Control now has a stronger appeal and greater market than ever before. The complete Field line covers all residential and commercial needs. And there's *profit* in every easy sale, installation taking as little as 30 minutes.



Illustrating the Field Type "M" Control, acknowledged the most accurate of draft controls. Write for information on this and other types in the complete Field line of domestic and commercial units.

FIELD CONTROL DIVISION MENDOTA, ILLINOIS

Underwriters Issue Oil Appliance List

UNDERWRITERS LABORATORIES, INC., Chicago, have issued the annual "List of Inspected Gas, Oil and Miscellaneous Appliances," which covers listed oilburners and oilfired units.

The list shows 185 manufacturers of conversion burners, and 67 manufacturers of boiler, and furnace units and oilfired water heaters. Also shown in the book are the names and specifications of manufacturers of oilburner accessories and controls, industrial oilburners and oilburning stoves.

◈

L. G. Bean has been elected vice-president in charge of engineering and sales for the Bristol Co., Waterbury, Conn. Harry E. Beane has been named sales manager, and E. L. Stilson as assistant sales manager.

Shell Oil Company has appointed J. F. M. Taylor and H. Bloemgarten as vice-presidents of manufacturing, and of exploration and production, respectively. Mr. Taylor succeeds E. D. Cumming who has been named director of refining for PAW.

Webster Electric Co., Racine, Wis., published in January the first issue of the "Webster Electric News," a house organ covering the activities of the company and its employees. It will be circulated to customers, associates and employees.

◈

Distillate Group Elects

MEMBERS of the Distillate Burner Manufacturers Association held their annual election at a meeting in Boston, February 24. F. H. VanBlarcom (Lynn) was elected president for the coming year; R. M. Sherman (Silent Glow) is first vice-president; Joseph Meyer (Alaska) is second vice-president, and E. T. Isaacs (Cronin) is secretary-treasurer.

◈

A. N. Morton, formerly factory manager of the Plainfield, N. J., plant, has been named production manager of Mack company's three huge plants by Charles T. Tuhf, president of Mack Mfg. Corp. and executive vice-president of Mack Trucks, Inc., parent company.

Anthracite Industries, Inc., moved its offices to 2204 Walnut St., Philadelphia, from the laboratory at Primos, Pa. Allen J. Johnson explains that the work of the organization now is more closely related to the Philadelphia office than to the laboratory.

THE WARTIME Prices and Trade Board announced that its administration of heating, plumbing and air conditioning supplies and equipment moved March 1 from Ottawa to Montreal. E. J. Laidlaw, administrator, E. R. Galuey, Deputy Administrator and the staff will occupy offices at 1019 Canada Cement Building, Montreal.

STOVE MANUFACTURERS producing new models of the coal-fired variety to assist the fueloil conservation campaign shall not offer these for sale until authorization has been given by OPA, in which ceiling prices shall be established, under Amendment 4 to RPS 64.

Heard the One About the Snail and the Cherry Tree?

IT seems there was once a snail who started to climb the trunk of a cherry tree one cold morning in January. As he inched painfully upward, a wise-guy beetle stuck his head out of a nearby crack and said, "Hey, buddy, your wasting your strength. There ain't any cherries up there." But the snail kept right at it. "There will be when I get there," he said.

WE cite the above to show how we feel: That on V-Day, when the great post-war markets open up, we'll be ready to serve our dealers with the best equipment. We've never been snails in the oilburner race—always out in front. Right now we are helping Uncle Sam to Victory, but we've got great things planned for peacetime. Keep your eye on,—

• OIL EQUIPMENT • LABORATORIES, Inc.

Elizabeth, New Jersey

GULF

Makers and Marketers of Quality Petroleum Products for more than a Third of a Century

•

GULF OIL CORPORATION

NORTHEASTERN DIVISION SALES OFFICES

Park Square Building	Whitehall Building	1515 Locust Street
Boston, Mass.	New York City, N. Y.	Philadelphia, Pa.
Hancock 3700	Bowling Green 9-5420	Pennypacker 4240

New England Oil Men to Meet April 21-22

THE TWENTIETH ANNUAL convention and war conference of the Independent Oil Men's Association of New England will be held at Boston's Hotel Copley Plaza, April 21 and 22. A number of Washington officials will be included in the list of speakers, according to Clyde G. Morrill, executive secretary.

M-H and Ilg Get "E"

EMPLOYEES of the Minneapolis-Honeywell Regulator Company have been awarded the Army-Navy "E" for the second time in six months, "for meritorious services on the production line." The new "E" flag over the plant now carries a white star to signify the second award.

Ilg Electric Ventilating Co., Chicago, was awarded the "E" at an impressive 25-minute ceremony between shifts. The day shift took only fifteen minutes from the end of its day, and the night shift went to work only fifteen minutes later than usual to attend the ceremonies.

Substitutes for Metal in Heating Ducts

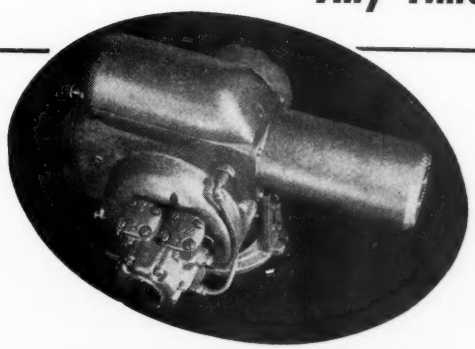
RESTRICTIONS AGAINST the use of metal, particularly galvanized and tinned sheets, make necessary the use of substitutes. Unfortunately, no other readily available material has the same characteristics from the viewpoint of the sheet-metal worker. A number of fire tests with proposed substitutes have been recently conducted at the National Bureau of Standards.

A substitute that can be worked with the same tools and technique would find more ready acceptance by the trade, because any changes required in the procedure of fabrication and erection will usually work a hardship by slowing up the job. For these reasons the thin, pliable sheets have found favor, although some of the rigid boards may have superior structural strength and durability. Since fire safety requirements are lower for returns than for the hot-air ducts, different materials for the two kinds of ducts are used in many installations.

Among the pliable boards offered are several composed of a felt base with high melting point asphalt saturant and coating. Others are of similar composition for the core with facings of asbestos paper. These are combustible. Other pliable boards have paper box-board or press-board cores with asbestos paper facings. Some of these are rated "Combustible" or "Slow-burning," and others "Fire Retardant," as tested according to the procedure outlined in Federal Specification SS-A-118 for prefabricated acoustical units, to which reference is made for testing methods and classification requirements. The incorporation of bituminous materials to lower absorption will usually increase flammability. Fire retardant treatment of pressboard or boxboard cores makes for increased safety from flame.

Cement-asbestos boards have many characteristics that make them suitable for duct walls, although they are not readily worked into turns, branches, and other complicated fittings. In one system of fabrication, the edges of the board are mitered and cemented together with an adhesive, after which paper tape is applied to bind the corners on the outside. Another system employs grooved strips of flameproofed wood for corner members, and a third employs metal corner strips.

OIL-THRIFT *is Timely Any Time!*



OIL savings are important today and tomorrow! Future buyers . . . looking at Herco's record for oil economy, smooth operation and minimum servicing . . . will be "Herco-minded."

At present, war materials demand 100% of Herco's production. But a limited number of burners are still available for immediate delivery to qualified buyers.

HERCO OIL BURNER CORP., LANCASTER, PA.

All Herco Burners are listed as approved by Underwriters' Laboratories, Inc., for Commercial Standard CS75-39.

HERCO
The Oil-Thrifty
OIL BURNER

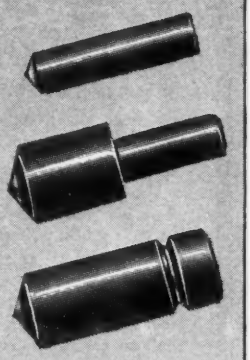
Serving America's War Industries

BALLOFFET DIAMOND TOOLS

Balloffet's entire resources have been mobilized for the war effort, in the manufacture of Diamond Tools. And in the building of these, the skill of our master craftsmen is engaged in serving America's war industries which make the weapons that will lead to victory.

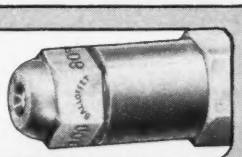
Catalog upon request

Precision Drillers since 1870



GRINDING WHEEL DRESSERS

BALLOFFET NOZZLES
Available on rated orders



BALLOFFET DIES AND NOZZLE CO., INC.
6825 ADAMS STREET GUTTENBERG, N. J.

fuelail & oil heat

Grate Price Ceilings Set

CEILING PRICES for conversion parts have been set by OPA in its Service Trades Bulletin No. 5, covering Boiler Conversion Parts. In addition to the prices per pound set on castings and accessories, OPA also has established dollars-and-cents ceilings over specific conversion grate assemblies.

Price ceilings on ordinary conversion parts apply only to East Coast states, West Virginia and the District of Columbia, but the price freeze on special combination grates, such as Convert-O-Grates, Stoket and Konver-to-Kol, apply countrywide. The prices do not apply to industrial or marine conversions.

Ordinary conversion equipment and parts price ceilings remain at 11¢ a pound at the foundry for wholesalers, 15¾¢ at the wholesale level for retailers and installers, and 20¢ a pound when sold to the homeowner. Installation labor can be billed separately, but only at the rates charged for the same labor or service on October 1, 1941.

Special combination grate prices, effective February 11, 1943, are the maximum *installed* price that may be charged. If sold uninstalled, the dealer must subtract the lowest bona fide quotation for installing such a grate in his territory from the prices listed above. Sales of such conversion grates are substantially over for this season, but Summer sales will be at these prices.

Trade Name	*Type*	*Capacity*	*Installed Price*
Convert-O-Grates	Kit A	Up to 24″	$34.95
	Kit B	29″ to 34″	39.95
Konver-to-Kol	Kit A	Up to 24″	24.95
	Kit B	25″ to 34″	39.95
Stoket	A-14	Up to 20″	32.95
	A-22	22″ to 26″	39.95
	Type B	27″ to 40″	27.95
	Type C	21″ to 27″	34.95
Hercules	Circular	Up to 26″	34.95
	Obround	27″ to 32″	39.95
Blue Coal, Lehigh, Hudson, Hershey, Am. Brake Shoe, Early, and Dieter	Round	Up to 21″	44.95
	Round	22″ to 25″	49.95
Standard	4 Grate	Up to 24″	49.95*
	5 Grate	25″ to 26″	54.95*
	6 Grate	27″ to 29″	59.95*

*Includes installation with angle clips only. When firebrick chamber is used, add $9 to the price.

Brown Instrument division of Minneapolis-Honeywell Regulator Co., Philadelphia, is preparing to expand into a second former bank building. The company, which took over the former United Securities Trust Building, and now the Manheim Trust building, is building control equipment for war industries.

KEEP 'EM FIRING
with Gar Wood

★ Self-Contained Forced Warm Air Automatic Oil-Fired Heating Units. (from 50,000 to 500,000 B.T.U./Hr.)

★ Industrial Space Heaters up to 500,000 B.T.U./Hr.

★ Boiler-Burner Units up to 25 HP.

Some Distributors and Dealers are receiving Government business for Heating Equipment. If you are one of those who are called upon to submit estimates, heating plans and surveys, we suggest you enlist our cooperation and our engineering service.

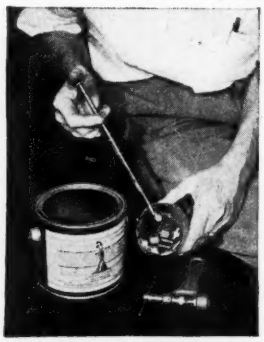
Write today for "ENGINEERING STANDARDS"—this valuable 72-page book on Engineering, Installation and Operation of Heating Systems, sent free on request to Sheet Metal Contractors and Dealers, Engineers and Architects. This offer made for a limited time only. Address reply to Dept. 14A.

HEATING DIVISION
GAR WOOD INDUSTRIES, INC., DETROIT
Protect Freedom—Buy War Bonds

Want To Mail To This Field?

Use our Direct Mail Service. Send us your literature, stamped and sealed, ready to go. We address them on our up-to-the-minute lists of addressograph plates. Only $6 per thousand names for ordinary addressing, plus small fees for other services, such as sorting, stamping, etc. We have the only accurate oil heating list available today. Many successful advertisers have used it with success. Any state or group of states, or the entire country may be covered.

Circulation Department
FUELOIL & OIL HEAT
232 Madison Ave. New York, N. Y.

Have You Tried
JIFFY JUICE

IT CLEANS OIL BURNER NOZZLES CLEAN AS A WHISTLE.

Send $1.00 for Special 1 PINT Service KIT, wide mouth, oversized can with convenient "basket" for cleaning small parts.

Refills: Pt. 90c, Qt. $1.50, Gal. $4.50

SID HARVEY, INC.
VALLEY STREAM, N. Y.

Post-War Markets

(*Continued from page 19*)

The census of 1930 showed the average non-farm household was paying $43 a month for housing. By 1940 the average monthly rental value of American homes had dropped to $27. Based on building costs in the past, construction of residential units stops when the demand is for homes of $40 a month or less. In 1930, about 60% of the families were living in homes with a rental value of $40 a month or less, and in 1940 there were more than 80% of the families paying $40 a month or less. No figures are available for the depth of the depression, but we do know that building stopped.

It is what people are willing to pay for monthly rent, or its equivalent that determines the rate of residential building, not the population pressure. Between 1930 and 1940 the number of non-farm families increased 20%, but because the number able or willing to pay more than $40 a month for rent had dropped from 40% to 20% of the total, building was in the doldrums. We now have 5,000,000 more families than we had in 1930, and only 3,000,000 more homes. Yet, until family income goes up, there will be no pressure for more building.

Any rise in average family income, and in the amount that will be spent for rent, will not all be spent for new houses. The amount that is spent for new construction will depend on the progress that can be made toward more and better house for the dollar.

U. S. Expect Rise

Speaking before the recent convention of the National Warm Air Heating and Air Conditioning Association, S. Morris Livingston of the Bureau of Foreign and Domestic Commerce, put it this way:

"All of the increase in effective demand for dwelling units cannot be translated into demand for new construction. There is the possibility of modernizing old structures, thereby putting them in a higher price class at considerably less expenditude for labor and materials than would be required for new construction. Also, between April, 1940, and the end of the war we will have built perhaps 2 million dwelling units.

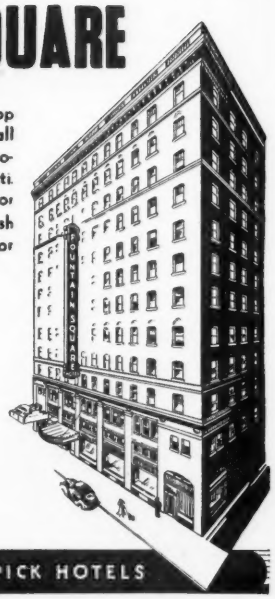
"Even with this discount, the housing market created by maximum employment would require an enormous volume of new construction. At the height of the construction boom of the Twenties we produced almost one million houses in one year. With this backlog, plus the roughly half a million additional families coming along each year, you can do your own guessing as to how much our potential construction boom might exceed that of the Twenties both in amplitude and duration. I am not making any predictions because so much depends on the construction industry itself.

"You will notice that I have carefully avoided calling this a deferred demand. In only a very limited sense does the the forced curtailment of construction during the war automatically create a postwar market. Demand for better housing always exists if people have the necessary purchasing power. If their incomes are not increased, or if industry cannot cut its costs to fit their purse, the demand can be deferred indefinitely. If their incomes are reduced, or if there is a sharp inflation of construction costs, we can

FOREMOST
IN CINCINNATI

HOTEL
FOUNTAIN SQUARE

If you consider location important, stop at Hotel Fountain Square – close to all business, shopping and social centers, providing unrivaled convenience in Cincinnati. Large, pleasant rooms-superior service. For fine food visit the air conditioned Moorish Grill-and the Olympic Cafe and Bar for sparkling gaiety.



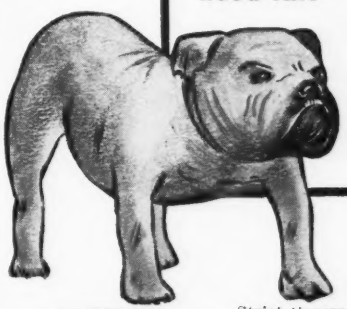
250 MODERN
OUTSIDE ROOMS
WITH BATH
from $2.50

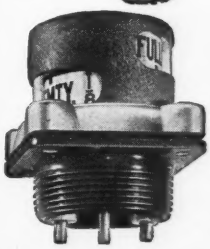
M. J. DEININGER, Manager

ONE OF THE ALBERT PICK HOTELS

Now! . . . more than ever before, Your Customers need this

FUEL OIL
WATCH
DOG



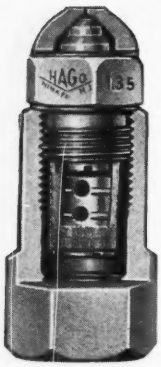


Strict Government regulations which now apply to *all* Fuel Oil Users has created an even greater demand for Rochester Oil Burner Tank Gauges. These Gauges because of their large, legible "Double-Dials" (an *exclusive* Rochester feature) permit quick, accurate, easy reading from outside or in the cellar . . . dependable "Watch Dogs" which tell you *when* and *how much* oil to deliver! Available for *immediate* delivery from your Rochester Jobbers Stock!

ROCHESTER MFG. CO., Inc.
7 Rockwood St. Rochester, N. Y.

Rochester OIL BURNER TANK GAUGES

fuel oil & oil heat



HAGO NOZZLES

Accurate, well-made, dependable for war-economy needs.

All capacities and spray angles.

Also, 2 nozzle kits:

POCKET-SIZE KIT containing 12 nozzles and strainers.

SERVICEMAN'S KIT containing 18 nozzles, strainers and adapters as specified and necessary tools. (Sprays: 30, 45, 60, 70, 80, 90).

Send for further information and prices. Quick service.

HAGO PRODUCTS

Herman Harsch—Ludwig Goetz, Proprietors

592 Hawthorne Ave., Newark, N. J.

easily have a reversion to the stagnation of 1932.

"This analysis of the effect of maximum employment makes no allowance for any change in the proportion of the consumer's budget which is spent for housing. While this proportion is likely to hold within narrow limits, it does depend to some extent on what can be obtained for that expenditure. If the industry can produce a strikingly better house at lower cost, it is conceivable that there might be fewer shacks with high-priced cars parked in the yard. If the industry cannot meet this challenge it is possible that the proportion of housing expenditures will be reduced and the balance spent for flivver planes, television sets or other gadgets.

"In this connection we need to distinguish between the demand for housing and the demand for new construction. Probably nothing the industry can do will result in any more than a moderate increase in the proportion of housing to total consumers' expenditures. The demand for new construction on the other hand is enormously elastic. Since new construction is always only a small fraction of the total supply of housing, a slight increase in housing expenditures can result in a very large increase in the market for new dwellings.

"It is important that the very large residential building demand created by maximum employment would be in a considerable part a replacement market. As you know, we have never had a real replacement market for houses. Dwellings usually have been torn down only because the site became more valuable for some other purpose. Rarely has a single family house been torn down to make room for another single family house.

"This is clearly indicated by comparing population growth with new construction over the last two decades. With a net increase of 10 million non-farm households in the 20-year period, there were 10 million new dwelling units built. Such dwellings as were torn down were just about offset by conversion of existing structures to house more than one family, and by other alternatives to new construction.

"We may now be looking forward to a replacement market which will be as important as the market created by the increase in the number of households. There were about 4 million houses with a rental value of less than $20 per month in 1940 for which there would be no market with maximum employment in a postwar year. That is, there would be no market if new dwellings could be built fast enough to satisfy the demand for better housing.

"This means that the rotting out of blighted areas would be greatly accelerated and that both the need and the opportunity for urban rebuilding would be correspondingly accentuated. The potential shift in effective demand from poorer to better housing has an important bearing on the future character and location of residential areas and, therefore, on the whole problem of long-range regional planning.

"This replacement demand depends again on what happens to construction costs. If these costs go up as fast as consumers' income, the net effect will be an inflation of prices of existing structures rather than a demand for new building.

OIL SOOT E-Z DESTROYER

CUT OIL HEATING COSTS

Simply spray E-Z and soot vanishes instantly. Customers always satisfied. One trial will convince you.

"EASY TO USE— ECONOMICAL TOO!"

DISTRIBUTORS: *Write for fine proposition.*

HEALY-RUFF COMPANY, 797 Hampden Ave., St. Paul, Minn.
Enclosed find check ( ) money order ( ). Send the following prepaid:

No. 1 pkg. ....$1.00 Name .....
Address .....
No. 5 pkg. .... 4.50 City ..... State.....

SELL STOKERS — TO *REPLACE*

Commercial Oil Burners

SIZES 65 TO 575#

HERE IS YOUR *BIG MARKET*

With the Govt. calling for removal of Commercial Oil Burners, you have the greatest market ever offered for Stokers.

WRITE TODAY

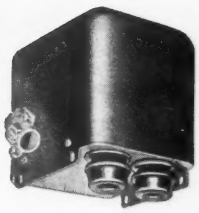
SCOTT-NEWCOMB INC.

1922 Pine St. St. Louis, Mo.

DONGAN TRANSFORMERS

Features That Insure Dependability

Here's a transformer that has stood the test of years because of its outstanding construction features. Its coils are specially space wound to protect windings from electrical surges. Insulation applied under high vacuum. All laminations heat-treated to remove internal stresses.

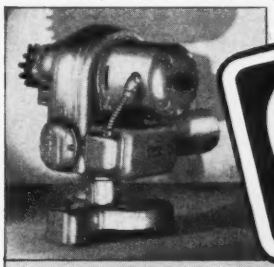


Voltages of 5000 to 15,000. A variety of sizes and mountings. Special types built to customer's specifications.

Dongan Electric Manufacturing Co.
2981 Franklin Detroit, Mich.
"The Dongan Line Since 1909"

WRITE FOR LITERATURE

OIL BURNERS? We still have some in stock . . . . and more to come when this emergency is over!
Remember . . . . REXOIL
REIF-REXOIL, Inc., 35 Carroll St., Buffalo, N. Y.



Rexoil

SINCE 1922

Manufacturers of Rexoil Conversion Burners, Boiler Units, Furnace Units and Direct-Fired Conditioners

"In the other direction the potential markets which could be opened up by cost reduction are enormous. Even with unemployment reduced to a minimum, and the consequent increase in demand for higher priced housing, only one-third of the households could afford to pay over $5,000 for a house. Another third would fall in the $3,000 to $5,000 price range—a market which we have hardly begun to exploit.

"We have built quite a few houses for less than $5,000 in the last several years, but they have not been sufficiently better than the secondhand structures at the same price to cause any widespread displacement of such structures. The amount of such new construction has been very small relative to the total number of families in this price class. Low-cost housing has been achieved in large part by drastic reduction in the size of dwellings and by elimination of all but the bare essentials. Such housing has served a useful purpose, but it is not the final answer."

It seems probable that prefabrication and mass production of houses will be an important factor in reducing costs. Joe American may be able to buy the new home he would like, rather than a secondhand house, but the price and the quality will have to be right.

As Mr. Livingston has pointed out, the low-cost housing we have had in the past is not the final answer, and heating equipment designs for the shabby little "low-cost" house we have known in the past may be entirely wasted, or at best represent too small a market to make the cost of development profitable.

There will be a tremendous market for oilfired heating equipment after the war. The public determines the demand, not the double-domes who are now burying the industry in Washington. The public has shown that it wants automatic, oilfired heating equipment, and it will not be denied.

That equipment must be good. It must be efficient. It must be designed to install in existing homes as well as in new construction. The field is wide open, gentlemen. Start to work.

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SUN OIL COMPANY has distributed thousands of fueloil ration record cards during the last few months to help users calculate the amount of oil per period they were allowed from inventory and from coupons, and the amount actually used. Cards were sent directly to customers on the company's lists, and distributed to fueloil users through dealers and service stations.

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The cards make it possible for oil users to determine period dates for their particular locality from tables, and by simple division, to allot their oil in inventory at the start of the season, and the oil represented by coupons, to the proper periods. Space also is available to record actual consumption and compare consumption with the allotment per period.

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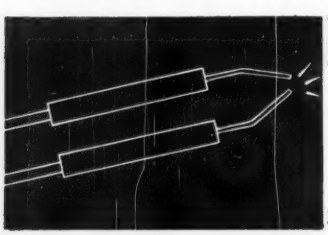

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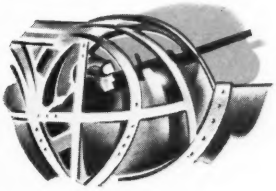

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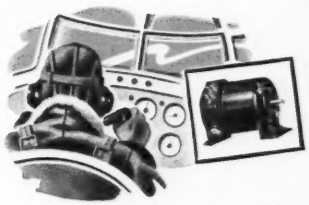

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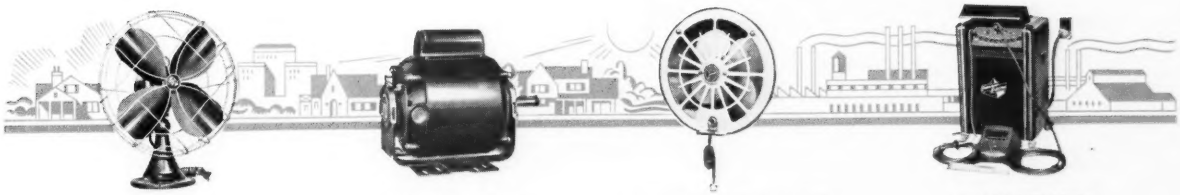

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